TECHNOLOGY DEPT.

JANUARY, 1951

Telephone and Management Engineer

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DETROIT

THE NATIONAL TELEPHONE MAGAZINE

Features In This Issue—

- Rebuilding The Rural Outside Plant, *page 31*
- Newsletter, *page 11*
- Washington Bureau, *page 29*

R v.55 1951

SOMETHING MISSING!

If your telephone directory fails to provide extra operating revenue for your company by showing consistent and substantial profits then **something is missing!**

By reviewing your present directory publishing procedure we can show you how to restore the missing element and put your directory back on a real money making basis. We will gladly make a complete analysis of your present procedure. From your own records we will establish the maximum profit potential of your directory, and then, we'll explain how you should proceed in order to capture this extra profit.

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Tech

New Plymouth, Wis., Exchange and Eastern District Headquarters, Commonwealth Telephone Co.

Portion of 26-cell FME-21 Exide-Manchex Battery serving Plymouth Exchange.

A new exchange—another new installation of dependable

Exide-Manchex BATTERIES

The new Plymouth, Wisconsin, exchange of the Commonwealth Telephone Company cut over at 6:00 A.M., October 25, 1950. And helping to bring it into operation was a battery of 26 FME-21 Exide-Manchex Cells.

This new exchange has a capacity of 3000 lines, with 1400 lines serving 2159 stations now installed. The average traffic is 10,000 originating calls daily. Exide-Manchex power for the exchange consists of a 23-cell main battery, with 3 end cells, float operation.

The dependable performance and long life of Exide-Manchex Batteries assures the Plymouth Exchange of positive operation for many years to come. And, for your exchange, consider also the low-cost maintenance, the *all-round economy* you get with Exide-Manchex. For all stationary battery requirements—common battery, emergency reserve, signaling, PBX, and other applications—specify Exide-Manchex!

THE ELECTRIC STORAGE BATTERY CO., Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

ONLY THE EXIDE-MANCHEX BATTERY GIVES YOU ALL THESE FEATURES:

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- Latest developments in molded glass jars
- Heavy terminal posts with copper inserts for greater conductivity
- Slotted plastic separators that are impervious to chemical and electrical reaction
- Plastic spacers that maintain plate alignment

"Exide" and "Manchex"
Reg. Trade-marks U. S. Pat. Off.

1888 . . . DEPENDABLE BATTERIES FOR 63 YEARS . . . 1951

Across The Editor's Desk

GEORGE M. KLOIDY will continue as secretary of the Nebraska Telephone Association for the year 1951. As our readers are aware George announced his retirement effective December 31, 1950 but has reluctantly agreed after the board of the Nebraska association asked him to continue. Although we know Mr. Kloidy was anticipating a rest after his quarter century service to the association we are glad we will again see his smiling face during 1951.

• • •

Our January 1 issue carried the Committee appointments of RAY DALTON, president of the United States Independent Telephone Association. We think his selections are excellent and predict a successful association year under his guidance. Mr. Dalton has served many years in many capacities with the association and has informed us he intends to do as much visiting in various sections as his duties will permit. He is vice president and general manager of the West Coast Telephone Co., Everett, Wash.

• • •

HARRY B. MACMEAL, well known as a former publisher of telephone trade journals and in later years as sales manager of the Runzel Cord & Wire Co., Chicago, was the subject of a long story in a recent issue of the Grand Rapids (Mich.) Herald. His address since his retirement is 3541 Buchanan SW, Grand Rapids, Mich. Harry was the author of the "The Independent Telephone Industry", a book published some years ago and is well known throughout the industry. The Grand Rapids Press also honored him with further stories of his life and experiences.

• • •

Greetings to the new secretary of the Oklahoma Telephone Association MR. HUGH D. STRAUGHN. He is now officing in association headquarter in Oklahoma City. He succeeded Mr. H. W. Hubenthal, retired, whose story appeared in these columns some time ago.

The National Telephone Magazine

TELEPHONE ENGINEER and MANAGEMENT

JANUARY, 1951 **VOL. 55, NUMBER 1**

Editor, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
Managing Editor, JOHN G. REYNOLDS
Promotion Manager, DON C. SORENSEN
Washington Bureau, ROLAND C. DAVIES *and* FRED HENCK
Circulation Manager, JUNE LEWIS

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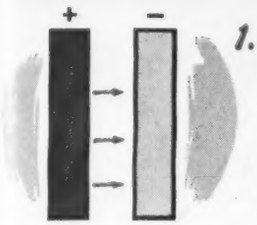
FRONT COVER

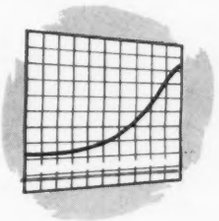
"Freddie", the telephone dog has been with the plant department of the Pacific Tel. & Tel. Co. for approximately two years. He lives in San Anselmo, California, about four blocks from the plant construction garage, where he reports for work every week-day morning at 8 o'clock. As illustrated by the front cover photograph, "Freddie" manages to be around at lunch time. Recently "Freddie" was clipped by an auto while chasing a ball. His Pacific Bell pals chipped in a "Freddie Fund" to pay the hospital bill. (Thanks to R. C. SMITH, editor of PACIFIC TELEPHONE MAGAZINE for making the photograph available for our use.)

Published monthly by TELEPHONE ENGINEER Publishing Corp.
7720 Sheridan Road - Phone Rogers Park 4-3040 - Chicago 26, Illinois
West Coast Representatives, BRAND & BRAND
1052 West 6th Street, Los Angeles, California
Copyright 1951 by Telephone Engineer Publ. Corp.

VOLUME 55, NUMBER 1. Published monthly by Telephone Engineer Publishing Corporation. Office of Publication, Pontiac, Illinois. Executive and Editorial Office, 7720 Sheridan Road, Chicago, Illinois. Subscriptions: U. S., Cuba, Mexico, $2.00 per year; Canada $2.50; in all other countries, $4.00. Single copies, U.S.A. 20 cents. Entered as second class matter at the post office at Pontiac, Illinois, under the act of March 3, 1879.

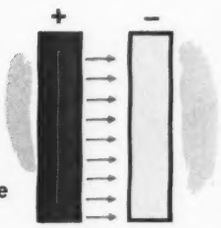


1. Batteries on full float service require a small current to offset normal self-discharge. This self-discharge is due primarily to migration of antimonial impurities from the positive grids or grid frames to the negative plates.



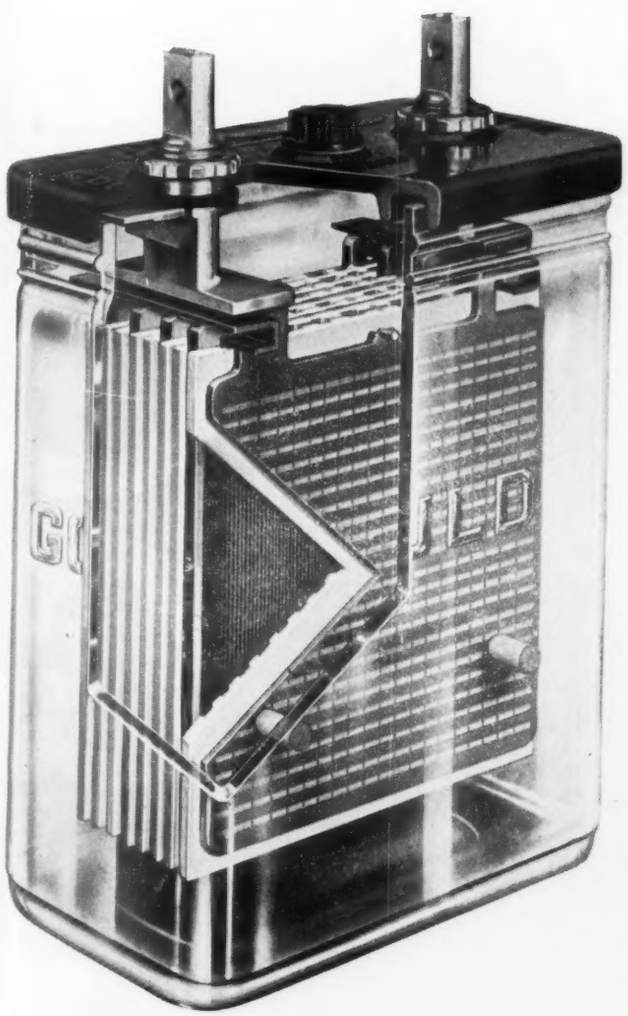
3. Gould Planté Batteries contain no antimonial impurities. Therefore, their voltage requirements and capacity remain constant throughout their amazingly long, low-cost life.

2. In ordinary batteries as the self-discharge rate increases, more and more antimony is transferred to the negative plates. The cycle is repeated with increasing tempo until the positive grid fails completely.



GOULD PLANTÉ

The Stationary Battery That Lasts Practically Forever!



Because all of each positive plate is pure lead, Gould Planté Batteries stay in active service for 20 years, 30 years, and even longer! Nothing equals them for dependable, trouble-free service. They float at constant voltage and maintain rated capacity all their life. And, because they almost never need service, their maintenance cost is negligible. Choose

GOULD PLANTÉ

The Aristocrat of Stationary Batteries

GOULD

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Crowning Achievement of the Century In Serving Independent Telephony!

Dependability—Flexibility—Serviceability—Economy . . . these distinguish the Kellogg Crossbar, perfected after more than a decade of research and development by Kellogg Switchboard and Supply Company, an independent manufacturer which has devoted more than half a century to the improvement of Independent Telephony.

Kellogg Crossbar was developed to meet present and future nationwide toll dialing requirements.

Kellogg Crossbar requires a minimum of floor space. It provides adequate trunking for all conditions, and additional lines can be installed in a few minutes time.

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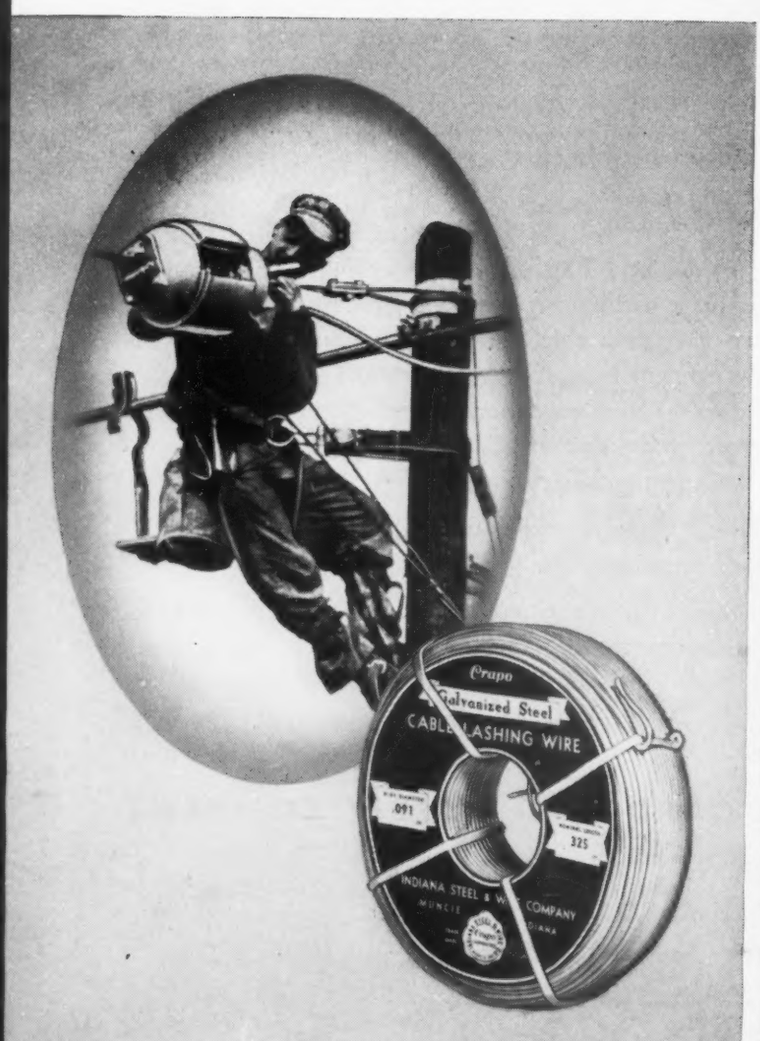
Chicago 38, Illinois

SINCE 1897

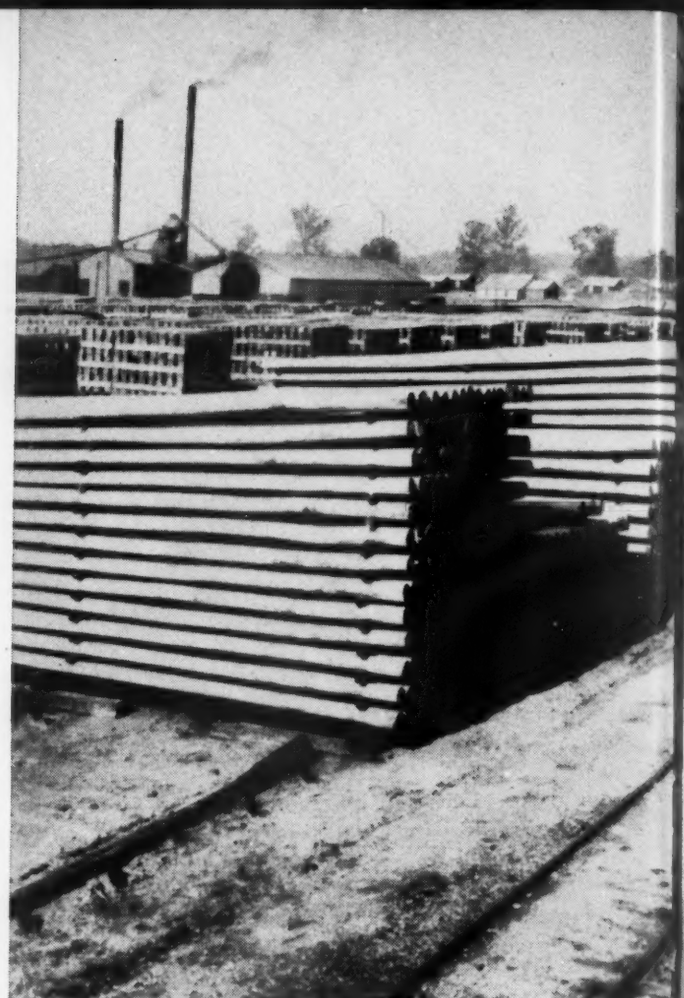
KELLOGG

Factory and Offices of
Kellogg Switchboard and Supply Co.

Manufacturers as well as distributors of the finest quality equipment and supplies for the independent telephone field for over fifty years.



Prompt Delivery! Available now, for use with modern cable spinners, is Crapo Galvanized Steel Lashing Wire. This heavy-galvanized wire is .091" diameter, comes in 325-foot coils. "Stainless Steel" Lashing Wire can be furnished promptly in .045" and 0.65" diameters. Both are products of the INDIANA STEEL AND WIRE COMPANY.



Time Proven! Creosoted Yellow Pine Poles supplied by Moss are carefully selected for quality—expertly handled through seasoning and creosoting stages—every pole full-length pressure-treated. Poles are shipped as scheduled by the purchaser. Look for "The Stamp of Character" on poles manufactured by T. J. MOSS TIE COMPANY

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PROMPT HANDLING
QUICK SHIPMENTS

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When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

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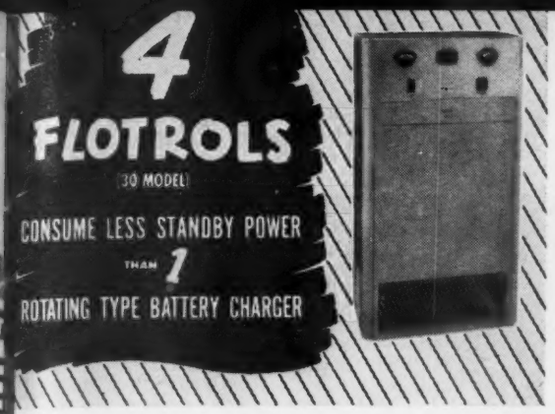
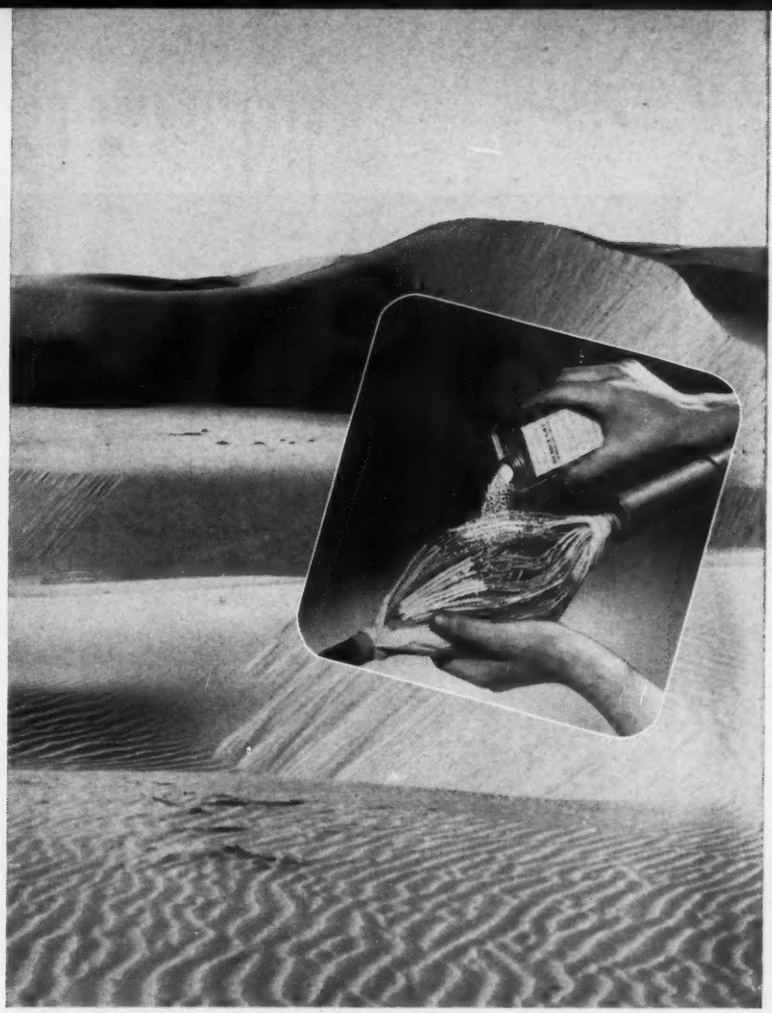
ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED F

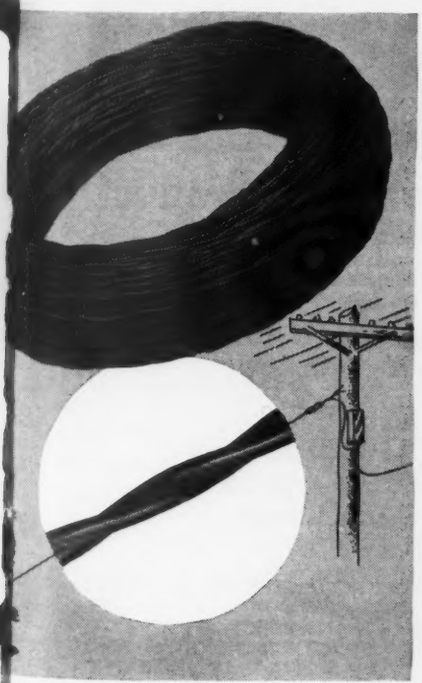


Flotrols (Model 3) Consume Less Standby Power than 1 Rotating Type Battery Charger. Provides automatic charging control without moving parts. Switching and control panels eliminated. Flotrol Automatic Charger gives real power savings with low standby loss. Made by LORAIN PRODUCTS CORP.

Your Battery Problems are Solved when you put Gould Planté and Floté Batteries to work. Unique features of design cut maintenance and charging costs, lengthen life and reduce replacements. Made by GOULD STORAGE BATTERY CORP., a leader in their field.



Drier Than the Driest Desert! Drierite Desiccant is the safer way to dry out splices in lead covered cables. After splicing, just place a cotton gauze under the splice and sprinkle Drierite granules among the conductors. This W. A. HAMMOND DRIERITE CO. product absorbs all moisture, thus making the splice the driest part of the entire cable.



Long Service Life and Low Plant Costs go hand-in-hand with the installation of **ENDURENE** — The Neoprene Drop Wire available in both Copperweld and Bronze. This flexible easy to handle wire is made by the GENERAL INSULATED WIRE WORKS.

Reliable . . . Economical! "Eveready" "Columbia" "Gray Label" telephone dry cells give you dependability, plus economy thru higher sustained voltage and extra service life. Made by NATIONAL CARBON CO., INC. Specify them to assure highest operating efficiency.

A Safety Tool for Severing the Binding Straps on Carloads of Poles! The No. 1-SC Wire Cutter made by BARTLETT MFG. CO. can be operated at a safe distance from the load, is capable of cutting 4 strands of No. 7 wire and flat narrow steel straps at one stroke.

All relay springs are fitted with twin contacts to ensure faultless connection. This operator is adjusting contacts for correct alignment using an instrument specially designed for the purpose. All the operations involved in the assembly and testing of these mechanisms require a high degree of aptitude and skill.

From First Principles to Finished Product

In 1835 the first relay was invented by Joseph Henry as a natural product of his earlier researches into the principles of electromagnetism. This invention is, without doubt, one of the most important which has contributed to the development of the science of Telecommunications and there are today few communication systems which do not depend, either wholly or in part, on the operation of relays.

Constant research into the metallurgical, magnetic and electrical properties of relays is carried on in Strowger laboratories. The production departments manufacture scores of thousands of relays a week, this entire output being absorbed in the assembly of the Company's major products.

AUTOMATIC TELEPHONE & ELECTRIC CO. LTD.

Export Department : Strowger House, Arundel Street, London, W.C.2.
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Strowger Works, Liverpool, England.

PRODUCTS OF THE COMPANY INCLUDE: DIRECTOR AND NON-DIRECTOR AUTOMATIC TELEPHONE EXCHANGE EQUIPMENT, AUTOMATIC TRUNK EXCHANGES, RURAL AUTOMATIC EXCHANGES, PRIVATE AUTOMATIC EXCHANGES, PRIVATE AUTOMATIC BRANCH EXCHANGES, SINGLE AND MULTI-CHANNEL (CARRIER) TRANSMISSION EQUIPMENT; INTERCOM KEY-CONTROLLED TELEPHONE EQUIPMENT, CENTRALISED SUPERVISORY REMOTE INDICATION AND CONTROL EQUIPMENT; "RYTHMATIC" RIPPLE CONTROL EQUIPMENT; "ELECTRO-MATIC" VEHICLE-ACTUATED TRAFFIC SIGNALS; MINE TELEPHONES AND COLLIERY SIGNALLING EQUIPMENT.

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NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*
ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

January 15, 1951

Dear Sir:

Record-breaking construction costing $5 billion in five years has put Bell System in well-prepared position to do its full part in meeting national emergency needs, A. T. & T. reported in year-end business review. A. T. & T. Pres. Leroy A. Wilson said that during 1950, nearly 2 million telephones net were added, bringing total in service to 35.3 million. Other evidences of progress made by Bell System were: Number of telephones in service at year-end was twice as much as in 1940; since 1945 long-distance network, augmented by 1.5 million circuit miles in 1950, has grown from 16 million to 27 million circuit miles; Bell System companies gained 250,000 telephones in rural areas in 1950, bringing total gain in new rural stations since 1945 to 1.5 million.

Requests for service from Bell System continued in volume with about 800,000 orders on file & 1.7 million requests from party-line subscribers for upgrading still on books. Year-end review noted operators can now dial out-of-town calls direct to called telephones in more than 1,000 localities, & about one-third of toll calls now being handled by this direct method.

* * *

Telephone Regulatory Commissioners' Committee of National Association of Railroad & Utilities Commissioners (NARUC), headed by Georgia Commission Chairman Matt L. McWhorter, Jan. 4, engaged in intensive all-day discussion & study of procedures aimed to implement proposed revision of telephone separations method, which it is felt would result in alleviation & remedying of present substantial disparities between interstate & intrastate telephone toll rates.

According to Telecommunications reports NARUC,, at its mid-November annual convention in Phoenix, emphatically urged FCC to join in cooperative study of proposed revision of separations method, which would recognize new developments in art of telephony like coaxial cable & microwave radio relay in their effects on operations of long distance telephone service. It was brought out at NARUC convention that present disparity between interstate & state toll rates amounts to more than $100 million annually.

Three Commissioner members of committee attended all-day session at NARUC headquarters. Besides Chairman McWhorter, other members were Commissioner Spencer B. Eddy of New York Public Service Commission & Commissioner B. Frank Morgal of Pennsylvania Public Utility Commission.

* * *

Holding that 5.5% is reasonable return for Pacific Tel. & Tel. Co. on its Oregon intrastate operations, & that operations of company yield that amount at present & will in "reasonably foreseeable" future, Oregon

Public Utilities Commissioner George H. Flagg dismissed company's rate increase application & permanently suspended rates proposed by Pacific Tel. & Tel.

* * *

John M. Veale, unsuccessful Democratic candidate for Michigan state Senate last November, has been appointed by Governor G. Mennen Williams as a member of the Michigan Public Service Commission to succeed late Commissioner Stuart B. White, who was killed in automobile crash last November. Michigan Governor also has resubmitted name of Commission Chairman John H. McCarthy to state Senate for confirmation. He has been serving during the last year without confirmation.

A number of commission chairmanships are being changed during the first two months of this year. In Alabama, Commission President Gordon Persons becomes Governor of that state on Jan. 15. In California, under rotating system, Public Utilities Commission is selecting a new chairman.

Florida Commissioner Richard Mack, who has participated in FCC cases as cooperating commissioner, particularly in recent Western Union Telegraph Co. telephone sales case, was named Chairman, succeeding Commissioner Wilbur C. King. Tennessee has new Commission Chairman, Hammond Fowler, who was sworn in Jan. 3, to succeed John C. Hammer, who was reelected last November.

Montana has new commissioner, Leonard C. Young, who replaced Horace F. Casey as a result of election. In Virginia on Feb. 1, Commissioner Ralph T. Catterall is slated to succeed Commissioner W. Marshall King as chairman. The Washington State Public Service Commission lost valuable member, Raymond W. Clifford, who was elected a state court judge.

* * *

George M. Kloidy, veteran Secretary-Treasurer of Nebraska Tel. Assoc., who had announced that he was to retire Jan. 1 after 25 years of service in post, has reconsidered his decision at insistence of association's Board of Directors, & has been appointed to post for another year. The board previously had accepted Mr. Kloidy's resignation with reluctance,

Merle M. Hale, general commercial superintendent of the Lincoln (Nebr.) Tel. & Tel. Co., and president of the state association, said that group believes Mr. Kloidy "is one of the country's top state association secretaries. His work has always been highly commendable, and we are very glad he will be on the job for another year."

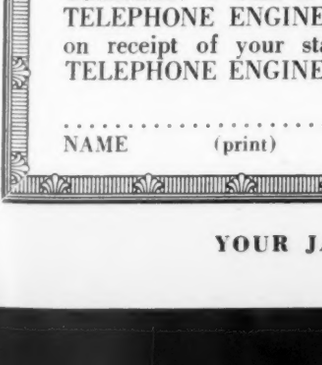
* * *

Alexandria (Minn.) Tel. Co., newly organized to operate facilities purchased from the Central Tel. Co. & make few extensions in telephone service in area, has been allocated Rural Electrification Administration loan of $36,000. Funds, in addition to $9000 furnished by applicant, will be used to acquire Central Tel. Co. plant in area & build about three miles of new line to serve additional 30 rural subscribers. Facilities to be purchased consist of about 70 miles of lines, serving 210 rural users.

Ray Smith

Ray W. Smith, Editor

how to make more profits from your telephone plant !!!



Some time ago a leading technical author wrote—"*The telephone company owner who has learned the importance of proper maintenance has taken a big step forward in assuring greater profits from his operation . . .*"

We at TELEPHONE ENGINEER believe in that statement. Through the years our editorial pages have consistently presented articles, carefully prepared to encourage the small and large exchange owner to add to his *profits* by properly *caring for* and *maintaining* all components of his telephone plant.

As the first major step in our 1951 editorial program we thought of *you* and *the profits* which are so essential to your continued success in the Independent field. From our analysis of hundreds of readers' letters we determined that our publications could be of major assistance to every telephone company if our first series of feature articles would thoroughly cover "*Modern Central Office Maintenance Practices*" and illustrate how practical proved-in maintenance practices can—

—Eliminate costly equipment failures,
—Reduce equipment replacements,
—Insure better service to subscribers,
—And thereby produce expense reductions that make the annual profit & loss statement more pleasant reading.

John S. Reed, author of the currently popular articles on "Rebuilding The Rural Outside Plant," will author the series of articles on "Modern Central Office Maintenance Practices" to appear exclusively in *Telephone Engineer Publications.*

Mr. Reed plans to: (1) Start right at the central office door and thoroughly cover proper building maintenance routines from fire protection through emergency lighting equipment: (2) cover switchboard maintenance from cleanliness to tests of cord and line circuits; (3) cover main frame maintenance from checking for loose connections through checking heat coils; (4) cover maintenance of power equipment from reserve battery supply through inspection of motor-generator sets.

EVERY PHASE OF practical, proved-in maintenance practices will be carefully explained and illustrated by photographs and drawings showing *how each job should be performed.* Here are just a few of the many topics scheduled to be covered in this series:

(1) Maintenance of switchboard drops, jacks, plugs, key shelves, generators, line circuits, cord circuits, etc., etc.

(2) Maintenance of the main frame, storage battery, battery chargers, ringing machines, relays, stepping switches, etc.

Mr. Reed, in his series of articles on—"Modern Central Office Maintenance Practices" will present what we believe will be, the first recent, practical summarization of routines that will assure proper maintenance of the central office from "*its office door through the cable vault.*"

With conditions forcing basic materials into war products, maintenance of existing equipment becomes increasingly important. Mr. Reed's articles, presenting workable ideas that will enable the exchange owner to make his equipment last longer and operate more efficiently, will prove to be a timely contribution of great value to the exchange owner who must keep his equipment going despite shortages of essential equipment.

The series of articles will appear in ten, possibly twelve, successive issues of TELEPHONE ENGINEER Magazines . . . starting with the February 15 Issue of TELEPHONE ENGINEER & MANAGEMENT.

In order to make this valuable course available to the industry in the shortest possible publication time, the installments will run in consecutive issues of TELEPHONE ENGINEER AND MANAGEMENT, and FORTNIGHTLY TELEPHONE ENGINEER. If you are not receiving both magazines sign and send in your subscription order today. Managers of many companies will no doubt wish to subscribe for two or three employees in the central office. If so send their name and address and a check covering them at $2.00 each for a whole year. Do not take chances on missing a single issue. ACT NOW!

Telephone Engineer Publishing Corp., Date .....
7720 Sheridan Road, Chicago 26, Illinois

Gentlemen: I want to make more money out of my telephone plant. Please enter my subscription to TELEPHONE ENGINEER MAGAZINES immediately. I am enclosing check for $2.00 or will mail same on receipt of your statement for TELEPHONE ENGINEER & MANAGEMENT and FORTNIGHTLY TELEPHONE ENGINEER for one year.

.....

NAME (print) Company Title or kind of work Town State

"The bonds we bought for our country's defense are helping our boy become a doctor!"

HOW U. S. SAVINGS BONDS ARE PAYING OFF FOR JOHN AND HELEN DALY OF STOCKTON, CALIFORNIA

John and Helen Daly are proud of their son, James. "Jim always wanted to be a doctor," says Helen, "and now he's getting his chance to study medicine, thanks to our U. S. Savings Bonds and the wonderful Payroll Savings Plan!"

"Jimmy was only 13 when John and I decided to make U. S. Savings Bonds a part of our plan for his future. I signed up then for the Payroll Savings Plan in the Stockton Naval Supply Annex where I work."

"We've saved $3,550, now. John has his phonograph business so I'm able to put more than 25% of my salary into Payroll Savings. I buy a $100 bond each month which goes toward paying for Jim's education."

"Jim's at the University of Santa Clara now, taking pre-medical work. Bonds are paying his tuition, and we're still buying them toward that M.D. for him. The Savings Bond method is wonderful for parents!"

The Dalys' story can be your story, too!

Whatever your dream, you can make it come true just as the Dalys did. But you've got to start *right now!* That's easier than you think if you take these simple steps:

1. Make the big decision—to put saving *first* before you even draw your pay.

2. Decide to save a regular amount systematically, week after week or month after month. Even small sums saved on a systematic basis become a large sum in an amazingly short time!

3. Start saving automatically by signing up *today* in the Payroll Savings Plan where you work or the Bond-A-Month Plan where you bank. You may save as little as $1.25 a week or as much as $375 a month. If you can set aside just $7.50 weekly, in 10 years you'll have bonds and interest worth $4,329.02 cash!

You'll be providing security not only for yourself and your family but for the blessed free way of life that's so important to us all. And in far less time than you think, you'll discover that you have turned your dreams into reality, just as the Daly family did.

FOR YOUR SECURITY, AND YOUR COUNTRY'S TOO,
***SAVE NOW*—THROUGH REGULAR PURCHASE OF U. S. SAVINGS BONDS!**

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If your toll call revenues depend on PENCIL work!

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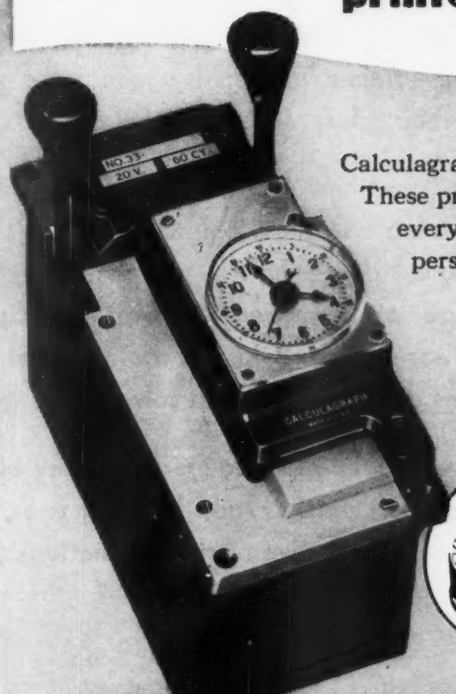

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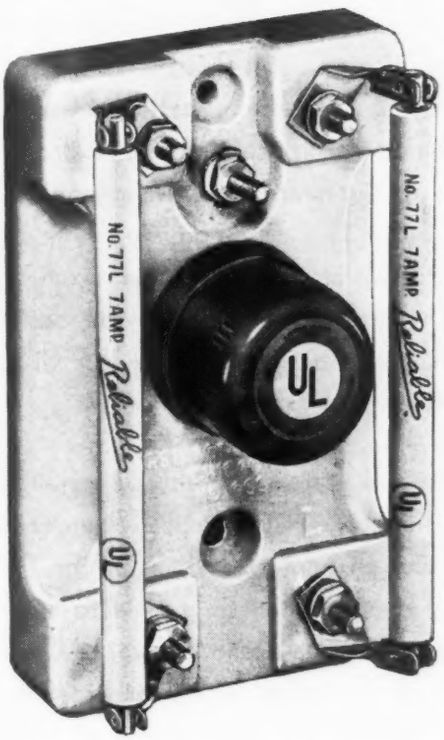

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955A	Two 77L	7	Round Ceramic	3-1/2 x 5-9/16	2-1/4

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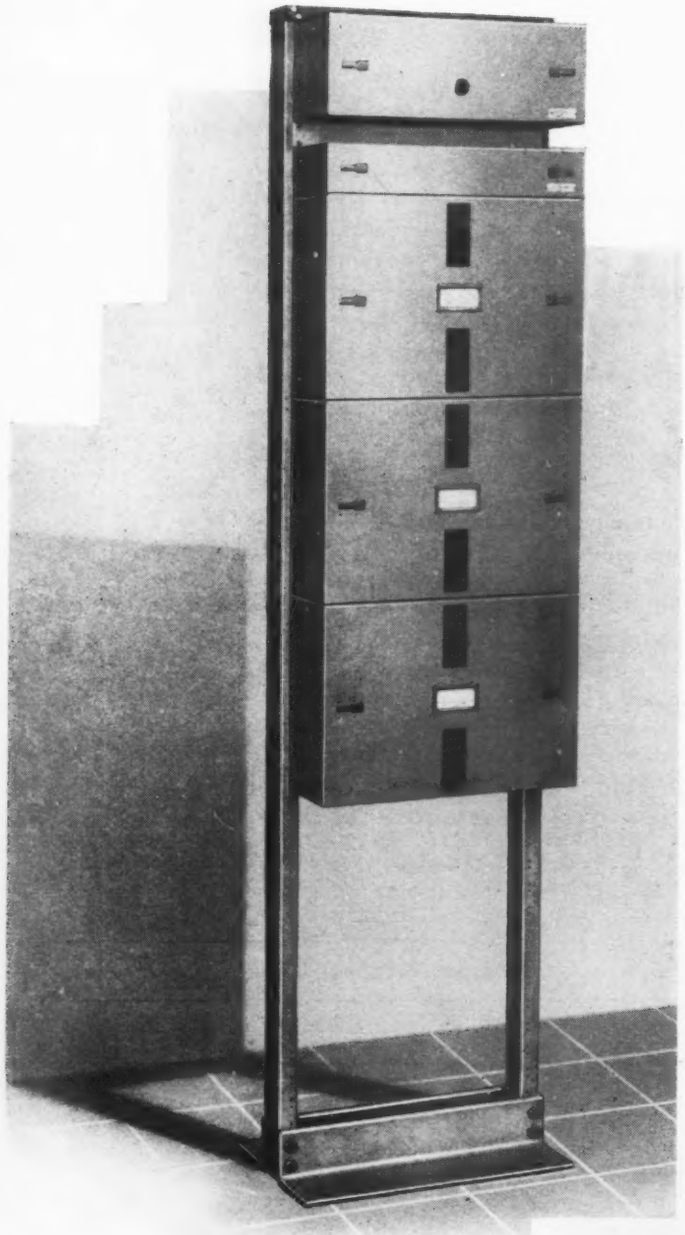

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NEWS BRIEFS

Nixon Reports Purchase of Sherman, N. Y. Company

PURCHASE OF the Sherman (N. Y.) Telephone Co. has been announced by Sam F. Nixon, general manager of the Chautauqua & Erie Telephone Corp., Westfield, N. Y.

The Sherman company was organized in 1899 and numbered among its early directors, Charles E. Sheldon, A. B. Sheldon, C. H. Corbett, H. H. Corbett, William H. Newell, John P. Hall, L. D. Gale and William Emory.

The Chautauqua & Erie Telephone Corp. was organized June 1, 1950 by a merger of four operating companies under the same management. Officers are Fred W. Plato, of Buffalo, president; W. B. Crandall, of Westfield, vice president; Sam F. Nixon, of Westfield, secretary, treasurer and general manager; and S. Fred Nixon, assistant general manager; George Dinsbier, of Mayville, wire chief and Joseph Wasmund, foreman.

City Council Approves Levelland, Tex. Increase

THE CITY COUNCIL of Levelland, Texas, has granted the Southwestern Associated Telephone Co. a rate adjustment and approved an agreement whereby the city will receive 2 percent of the company's yearly gross receipts in Levelland.

The rate increase will adjust cost of business telephones from $4.25 to $6.25 per month; two-party business lines from $3.25 to $4.75, and extension service from $1 to $1.50. One-party residence telephones will increase from $2.50 to $3.25 per month; two-party lines from $2 to 2.75, and four-party service from $1.75 to $2.25. Extension service rates will not be increased.

The company's total revenue last year was reported at $106,548. The new rates are estimated to yield revenues totaling $191,974 in 1951. The company plans to spend some $100,000 on improvements in Levelland in the next six months.

The 2 per cent of total revenues is paid in lieu of any other payments for use of city streets and alleys. It does not include general or special ad valorem taxes.

Major Heads Defunct "North Korean Bell Co."

MAJOR CHARLES R. ALBRIGHT, of Shreveport, La., has been named first "president" of the now defunct "North Korean Bell Telephone Co.," according to a release received from the Tenth Corps headquarters in Korea.

The Oriental version of the Bell system, of course, doesn't exist, but the men of the Tenth Corps signal section like to refer to themselves as such. The section strung more than 4,000 miles of telephone wire from the Hamhung sector to the Yulu river on the Manchurian border, connecting more than 1,000 military and civilian telephones.

The complete 4,000 miles of wire, and the 1,000 telephones have either been picked up, destroyed, or are in the hands of the enemy.

Mexico System Slated For Modernization

DURING THE NEXT five years, Mexico's newly consolidated telephone company, *Telefonos de Mexico*, will undergo a thorough modernization program. Programs are now under way to raise Mexico's telephone service up to standards previously unrealized. Scheduled for immediate action is the relief of existing plant and the purchase of badly-needed new equipment. Also earmarked for immediate delivery are thousands of new telephones for as many new subscribers.

By 1956 some 400 million pesos, more than $46,240,000, is scheduled to have been spent in this broad overhaul task. In the first year alone, the new company has slated $3,173,000, or 41 million pesos, for expansion purposes.

In the agreement drawn up June 1, 1950, the three controlling interests joined resources of the two telephone companies previously operating in the Republic: *Telefonos de Mexico*, owned by *L. M. Ericsson* of Sweden; and *Compania Telefonica y Telegrafica Mexicana*, an I. T. T. affiliate. Sharing equally in the three-way pact is Wenner-Grenn, also of Sweden, with Mexican stock.

Up to now, the two companies had been waging a constantly losing battle against the extremely low rates charged residential and commercial consumers. In Mexico City, where rates are highest in the Republic, residential subscribers paid only the equivalent of about $1.00 per month. Commercial service in the Capital was slightly more, $1.85—not enough to provide the modern, efficient service that Mexico demands. Also provided was an unlimited number of calls at no extra charge.

Following an exhaustive Government survey and an investigation by the Secretary of Communications and Public Works, it was decided last June 1 that rates must be raised considerably if Mexico was to have better service. An average 58 per cent increase was ordered last summer. For the time being, no limit to the number of telephone calls has been set, however.

Having won higher rates, the company immediately ordered and earmarked new equipment for installation. The company has been able to notify many new subscribers to expect service momentarily. As time goes on subscribers will experience a new efficiency, it is stated, as a result of the modernization and expansion program.

Central offices, badly overloaded by telephone traffic, are to be relieved. New, modern central offices are now under construction and many more are planned as the five-year program progresses. Each year the existing load of traffic will become heavier. but, through careful planning, *Telefonos De Mexico* expects to be prepared to handle it.

Long distance service within the

Mexican Republic also is to be extended. Here, Government economists feel, prompt service can be provided, where heretofore some delays were met. Since these facilities are regarded as indispensable to the nation's development of industry, agriculture and general business, rates in this branch will be kept somewhat lower to encourage its usage, it is said.

Modernization of the Mexican telephone service necessarily entails consolidation and an end to economic overlapping thus reducing employment requirements in some respects. Labor, however, has been assured it need have no cause for alarm. New installations and services are expected to provide jobs for workers employed under the previously operating system. It is possible, also, that in several years new employes will be needed to meet the ever-increasing demands of a country so rapidly becoming rich and prosperous.

Rural Co-op Formed at Cooperstown, N. D.

THE BALD HILL Cooperative Telephone Company was formed at a rural telephone meeting at Cooperstown, N. D., recently, according to Arne Goplen, chairman. Goplen said, "The purpose of the new telephone cooperative will be developing telephone service in Griggs county and surrounding areas that are not being served or where present existing telephone facilities and services are inadequate."

The new set-up will follow the proposed suggestions outlined by the Rural Telephone Loan Program. Goplen says, "First it is necessary to complete a township survey, and second, to secure applications from prospective subscribers who want telephone service."

To meet equity requirements the group voted to have a membership fee of $5 and capital stock investment of $45 for each subscriber.

Goplen has named the following township survey leaders: Willow, Art Anderson; Pilot Mound, Gordon Ellefson; Lenora, Joe Forberg; Bryan, Thomas Stokkeland; Addie, Nels Thune; Tyrol, Stanley Pittenger; Romness, Ray McCardle; Kingsley, Arne Goplen; Clearfield, Albert Evers; Washburn, Clarence Edlund; Mabel, Arnold Anderson; Helena, Robert Nelson; Dover, Omer Michaelson; Bartley, Swen Swenson; Greenfield, Howard Steiner; Broadview, Ingvald Rood; Foster county, Lawrence Utke.

These survey leaders will be responsible for securing signed applications and membership fees.

John Neilson, owner of the Inter-Community Telephone system, Nome, N. D., was present at the meeting. Mr. Neilson pointed out that he had an application pending with the REA.

Middle States Tel. Of Ill. Files For Rate Increase

IN 32 MONTHS, the investment of the Middle States Telephone Co. of Illinois, a subsidiary of the Central Telephone Co., in its 13 central and northern Illinois exchanges has risen, including construction work in progress, from $3.10 million to $7.03 million, the company has pointed out in filing with the Illinois Commerce Commission an application for proposed rate increases. The revisions were described as comprising the minimum amount necessary to give the company a fair return and permit it to maintain its credit and ability to attract any new capital.

The Middle States company, which had 30,475 company-owned stations

(*Please turn to page 22*)

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in operation at the close of August, had added 7278 stations during the 32-month period. The company pointed out that despite this heavy construction program, it still had 1061 held orders for main station and extension service, and a large number of orders for regrading. Studies indicate, it was stated in the application, that the demand for new and upgraded service is expected to continue indefinitely.

Vice President L. D. Densmore of the Middle States Telephone Co. and also of Central Telephone Co., in the rate boost application, brought out that the company received a rate increase in June, 1948, but that "The upward march of construction costs and of operating costs has continued in such a serious way as to again distort the proper relationship between earnings and the increased investment in telephone plant." Three substantial negotiated general wage increases have occurred since the end of 1947, it was noted, while construction costs have continued to mount.

42,280,000 Telephones in Service on Sept. 30

EXCLUDING THE 1,116,500 telephones of the Cincinnatti & Suburban Bell Telephone Co. and the Southern New England Telephone Co., in which the American Telephone & Telegraph Co. owns a minority interest, the Bell System had 34,751,000 stations in service as of Sept. 30, 1950, it was reported recently. Along with the 7,519,000 telephones of connecting companies the United States had a total of 42,280,000 telephones in service on that date.

Further illustrating the tremendous facilities required to fill the nation's telephone needs, the Bell System reported a total of 139.2 million miles of wire in service, of which 114.6 million was exchange and 24.6 million miles comprised toll lines. The total for the entire U. S. telephone industry was 128.6 million miles of exchange wire, and 25.4 million miles of toll wire, for a total of 154 million miles.

Bell System investment in plant and equipment was listed at $9.908 billion with the nation's total standing at $11.045 billion.

Estimated completed conversations daily, for the third quarter of 1950, were 130.67 million local exchange and 5.96 million toll calls for the Bell System, and 159.35 million exchange and 6.25 million toll calls a day for the entire U. S. industry.

Including the Bell Telephone Labo-

(*Please turn to page* 43)

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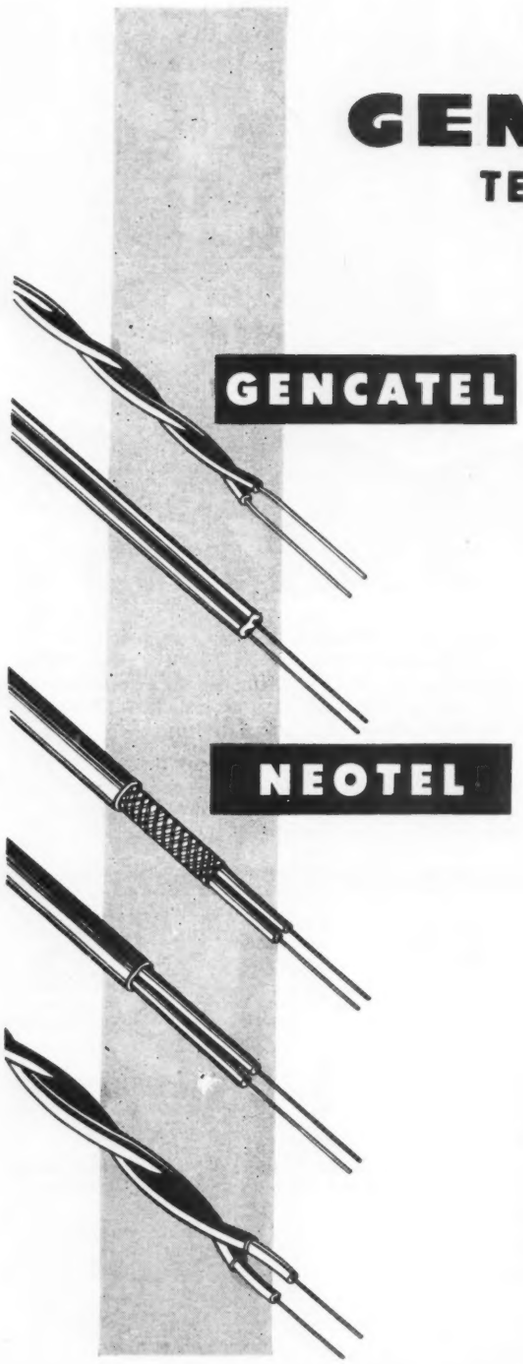

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EDITORIAL

How To Have Bad Public Relations

WE HAVE TALKED to a considerable number of telephone people, from time to time, about this proposition of public relations, which is one of those intangible things about business that is difficult of measurement or definition. And we have learned some things about the matter that we think are worth passing on.

One thing is that a telephone management and organization does not have to be mean and inconsiderate in order to have bad public relations. Another is that there are cases where companies supplying below par telephone service have better public relations than some companies supplying high-grade service.

The fact seems to be that the most certain way for a telephone company to have poor or even bad public relations is for it to do nothing whatever about its public relations. In that case the public itself determines the status of the company's public relations and, regardless of how good the service is, the result is not usually flattering to the company.

For years the public has been told over and over again by demagogues and spellbinders that utility companies are grasping monopolies, out to gouge the public in any way they can. And for years many utility companies, including many telephone companies, have let them get by with it. So is it any wonder that, unless the telephone company itself does something definite about the matter, its public relations are likely to be bad?

Telephone companies must, we think, be and remain cognizant of the fact that, no matter how perfect the company's organization and service may be—and none of us are entirely perfect!—good public relations are not created by that situation alone. The creation and maintenance of good public relations is a job that must be worked at just as assiduously as the job of running the telephone company and supplying the telephone service.

So much has been said and written, so many times, about the things that should or can be done to create and maintain good public relations for a telephone company, that there is no need of our attempting to recount those things here. The point to what we are saying here is that unless the management works at maintaining good public relations the result is not merely negative public relations—it is poor or bad public relations.

One telephone man with long experience in the matter said to us that the maintenance of good public relations consists largely of telling the public what you are doing or are trying to do, and why. There must of course be a willingness, he said, to participate in proper civic matters and carry the company's fair share of the load of civic activities and expenses, but the principal thing is to keep the public properly informed as to the facts about the telephone company and its activities.

"We have to keep away from the situation," he said, "where the only thing the subscriber ever hears from his telephone company, excepting his monthly bill, is notice that it must raise its rates."

Perhaps that is an over-simplification of the matter, but it seems to us that if the management of a telephone company did only these things, it would have no great worry about its relations with the public.

But there is one thing about all this that seems to us to be clear: The most certain way to have bad public relations is to do nothing at all about public relations.

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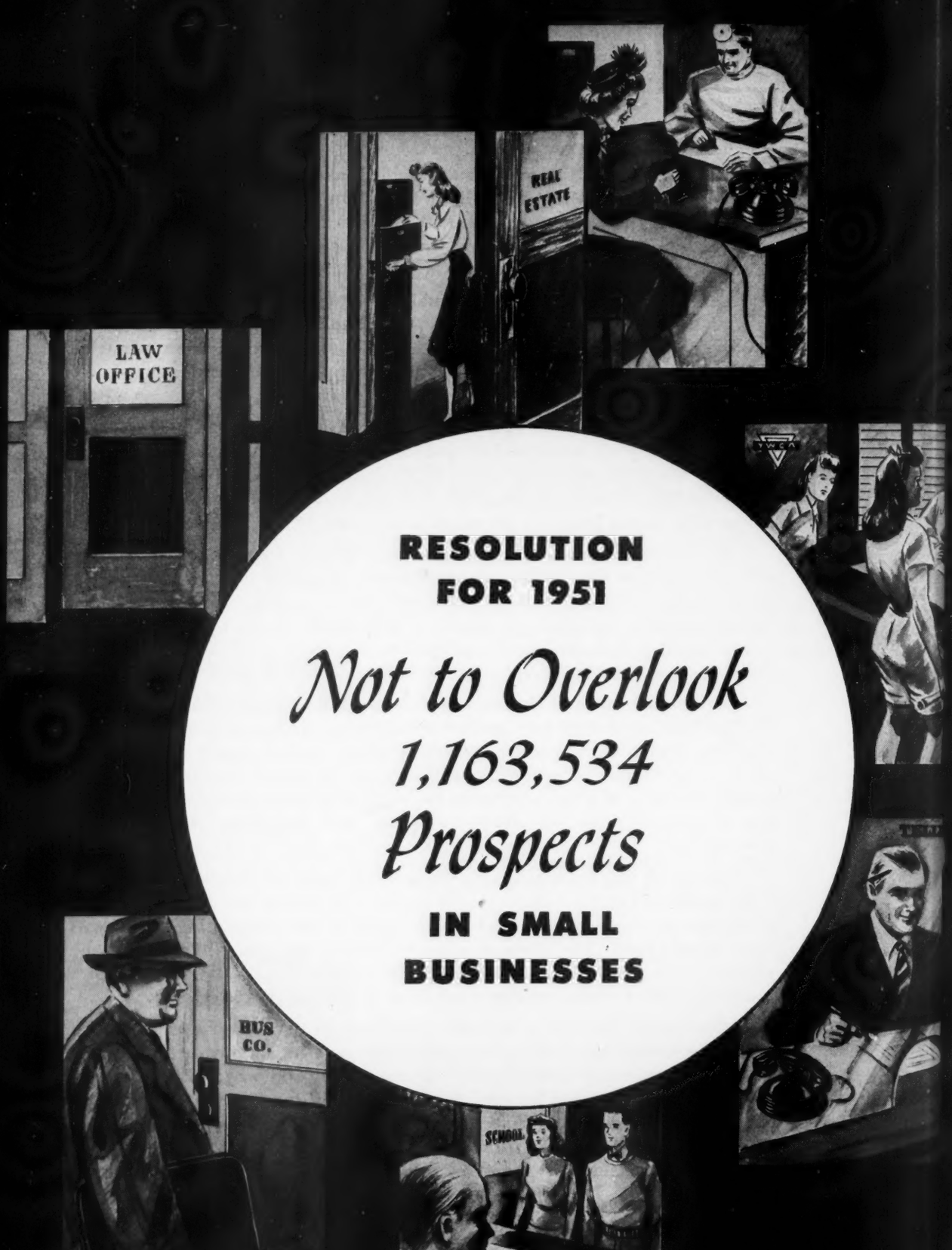

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Washington Bureau Reports

Coalition of Republicans and conservative Democrats hold the balance of power in new Congress . . . Wage controls in offing . . . Nickel pay station call on way out.

By ROLAND DAVIES and FRED HENCK

FOR THE FIRST TIME within the memory of all but the most veteran Washington observers, those who date back to the almost forgotten days when there was no personal income tax and federal spending was measured in mere millions, every Washington correspondent and observer appears to have been right on one of his predictions of things to come.

This glorious feat of a group which receives more conflicting information than a businessman touring Washington agencies with a problem not covered by specific rules and regulations occurred with the outset of the sessions of the 82nd Congress.

Without exception, every Washington observer, along with his "can't miss" forecasts that "taxes will be higher this year" and "more young men will go into the armed services", has forecast that a coalition of Republicans and conservative Democrats hold the balance of power in the new Congress.

That, of course, is exactly what happened on the first day of the House session. The House, by a thumping margin which averaged about 245-175 on two key votes, restored to the Rules Committee its previous authority to bottle up legislation.

Although it has been obvious that pure Fair Deal legislation would have rough sledding in the new Congress, with or without the previous Rules Committee authority, because of the war emergency, the House action should hang a wreath on the door of socialistic trends for the time being—with the very pronounced exception of the creeping socialism which occurs during every war emergency period, when the federal government increases its control over the nation, as a group and as individuals, and does not fully relinquish it after the emergency has passed.

The Rules Committee, of course, is dominated by a combination of Republicans—five in the current Congress, as compared to four in the 81st—and three conservative Democrats of the total majority representation of seven.

Although the Rules Committee's authority in preventing legislation it does not approve from going to the House floor for a vote, it comes reasonably close to it as a practical matter. Only by obtaining the signatures of 218 House members on a discharge petition, or by intricate parliamentary maneuvering on "calendar Wednesdays," can the supporters of legislation opposed by the Rules body majority get their legislation to the floor for a vote.

On the other side of the Capitol, the Senator who probably is Congress' leading authority on communications, Ernest W. McFarland of Arizona, has been named majority leader by the Senate Democrats. Senator McFarland, incidentally, is retaining his post as Chairman of the Interstate and Foreign Commerce communications subcommittee, despite the pressure of his duties as majority leader.

Although in recent years the most pressing problems under consideration by Senator McFarland's group have dealt with international communications, he is no stranger to the legislative problems of the telephone industry. Illustrating his interest in domestic communications, Senator McFarland appeared at the annual convention of the National Association of Railroad and Utilities Commissioners in Phoenix last November and addressed the group informally. He also headed the subcommittee which considered legislation to deny communications facilities to bookmakers during the past year.

The Arizona Senator has been distinguished by hard and earnest work, rather than brittle brilliance in the give-and-take on the Senate floor, during his Congressional service. But one of his colleagues, who supported him against volatile Joseph C. O'Mahoney of Wyoming, one of the Senate's outstanding orators, in the majority leadership contest, told reporters approximately as follows: "You people may criticize Ernest McFarland as majority leader, and describe him as bumbling. But he will deliver more Democratic votes on any given legislation than any other man we could select as majority leader."

With wage controls almost certainly in the offing, along with price freezes, probably by March, the meeting of labor and industry groups with the Economic Stabilization Agency in mid-January is taking on high significance to the telephone industry, both Independent and Bell System.

Interest was heightened with the announcement that among those attending the session, in his capacity as a CIO Vice President and Executive Board member, was Joseph A. Beirne, President of the Communications Workers of America (CIO). The CWA has expanded its representation in the Independent telephone field substantially during the past year, and has recently announced that it holds contracts for the employees of several additional Independents.

Mr. Beirne was understood to have presented a strong plea for the establishment of a telephone commis-

sion, similar to that organized by the National War Labor Board during World War II, in his participation in the conference with the ESA officials.

Under the present economic stabilization act, telephone rates are not subject to the board's preview, and thus telephone wages would not be automatically frozen under the board's authority to freeze wages in any industry at the same time it freezes prices. This, of course, immediately brings into play the proposal for a telephone commission to act on telephone wages in line with the general pattern for other wages established by the Wage Stabilization Board, an ESA offshoot.

Significantly, one of the questions considered by the conference in general was the establishment of industry commissions. In announcing the agenda for the meeting, the Wage Stabilization Board discussed industry versus area stabilization, adding "Related to this problem is the question of the extent to which a stabilization board should utilize industry commissions as subsidiary agencies."

On the general question of industry vs. area stabilization, the WSB also suggested the following as a matter for consideration of those invited to attend the conference: "Wage rates are established on both an industry and on an area basis. Particularly in times of serious manpower shortages, wage movements in an industry may have unstabilizing effects on area wage relationships. Wage movements within an area may also have unstabilizing effects on industry wage relationships. How shall a wage policy deal with this problem in order to achieve fair and effective stabilization generally? To what extent should urgent manpower needs be taken to account in a wage policy? Whatever basis is used, how should an inter-plant inequity serious enough to warrant correction be defined?"

The CWA, as the dominant union in the telephone field, has constantly urged national bargaining in the Bell System, and it is also reported that Mr. Beirne at the wage stabilization conferences had urged some clearly defined policy on the relationship of telephone wages to a national pattern for other industries.

Nickel Pay Station Call On Way Out

A TELEPHONE rate established back in the days when a loaf of bread or a quart of milk cost about five cents, the nickel coin box telephone call, slowly appears to be going the way of the other five-cent items—although, like all other telephone rates, it is going nowhere near as far proportionately as the heights which other cost-of-living- items have long since scaled.

Recognizing that the five-cent coin box rate simply does not pay its share of the cost of service, a number of state commissions have endorsed 10-cent coin box charges.

An Independent, the Rochester (N. Y.) Telephone Corp., was the first telephone company in the nation to obtain approval of a dime coin box rate. Since then, 10-cent coin box rates have been approved by commissions or put into effect by Bell System companies in New York, Illinois, Minnesota, Iowa, and small portions of South Dakota and Connecticut.

Bell Company Purchases Independent Properties

A GOOD EXAMPLE of the importance of telephone companies serving their areas of first responsibility, and using their available resources to best advantage, has come in an acquisition application already approved by the Virginia Corporation Commission and now before the Federal Communications Commission for final endorsement.

The Chesapeake & Potomac Telephone Co. of Virginia is asking FCC sanction of an agreement with the Central Mutual Telephone Co., with headquarters in Manassas, Va., under which C. & P. would acquire exchange facilities now serving 679 subscribers in an area adjoining C. & P. exchanges for a total price of about $151,000.

It is pointed out that the area to be acquired by C. & P. has a close community of interest with two suburbs of Washington, D. C. Alexandria and Falls Church, served by C. & P., and that the Central Mutual customers desire flat rate calling privileges with Alexandria, where they have their closest business and social ties. In addition, the area involved has been expanding tremendously, and Central Mutual does not feel able to meet all present and expected service demands there.

Coming Conventions

1951

Louisiana Telephone Association, Heidleberg Hotel, Baton Rouge, Feb. 2-3.

Minnesota Telephone Association, Hotel St. Paul, St. Paul, Feb. 6-8.

Texas Telephone Association, Hotel Texas, Fort Worth, Mar. 12-14.

Nebraska Telephone Association, Lincoln Hotel, Lincoln, Mar. 27-28.

Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, Apr. 3-4.

Illinois Telephone Association, Hotel Pere Marquette, Peoria, Apr. 19-20.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, Apr. 23-25.

Pennsylvania Independent Telephone Association, Abraham Lincoln Hotel, Reading, Apr. 30 and May 1.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 9-10.

United States Independent Telephone Association, Executives' Conference. Greenbrier Hotel. White Sulphur Springs, West Virginia, May 14-15.

Kansas Telephone Association, Town House Hotel, Kansas City, May 22-23.

New York State Telephone Association, Mark Twain Hotel, Elmira, June 6-7.

Washington Independent Telephone Association and Oregon Independent Telephone Association, Hotel Multomah, Portland, June 15-16.

John F. Sweeney Elected Pres., North Electric

THE NORTH ELECTRIC Manufacturing Co. announced Jan. 11 that John F. Sweeney of Cleveland, Ohio, has been elected president to replace Robert K. McBerty. Mr. McBerty resigned as president and director to devote the major portion of his time to his other scientific and business interests, but will be available as consultant to the new president.

Mr. Sweeney is head of the well-known advertising agency, Sweeney and James, of Cleveland, Ohio, and has been a member of the North board of directors for many years.

G. A. Berting, senior vice president, who has been with North for 27 years, will be in active charge of all operations at North's four plants in Ohio under Mr. Sweeney's direction.

In December, 1950, Harold D. Burns was elected secretary and assistant treasurer to replace L. J. Davis who resigned to head Power Equipment Company of Detroit. Elmer G. Reisland was elected assistant secretary at that time.

Vice president Lloyd Bender remains in charge of production. Herbert S. Boring, treasurer and comptroller who came with North in April, 1950 is now in charge of all financial matters.

Rebuilding The Rural Outside Plant

By John S. Reed

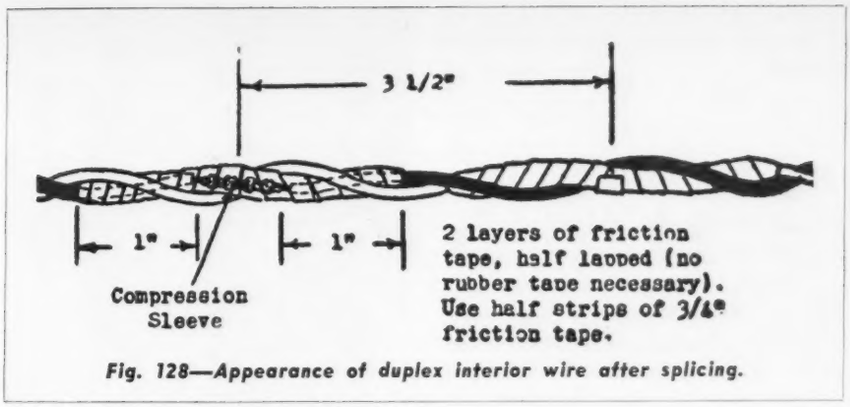

3 1/2"
1"
1"
Compression Sleeve
2 layers of friction tape, half lapped (no rubber tape necessary). Use half strips of 3/4" friction tape.

Fig. 128—Appearance of duplex interior wire after splicing.

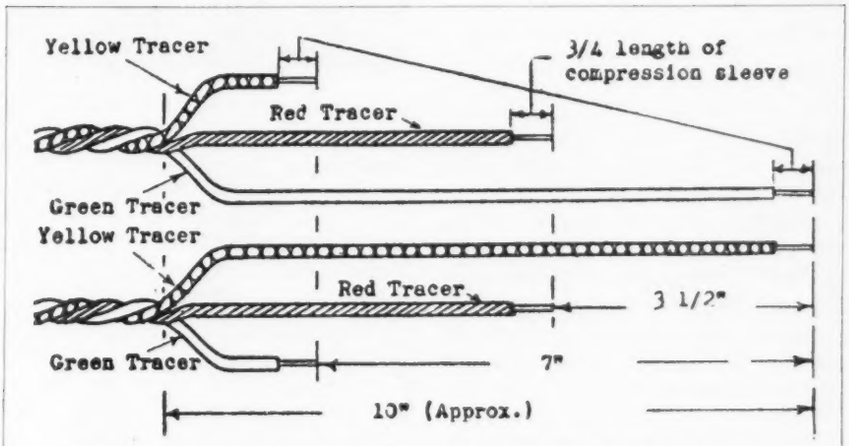


Fig. 129—Method of staggering splices on triplex interior wire.

Section XIV of Mr. Reed's Article concludes his discussion of approved methods of rebuilding the rural outside plant. Section XIII appeared in the Dec. 1950 issue of Telephone Engineer & Management.

IT IS CONSIDERED economical to splice together two sections of interior wire when the run exceeds 50 feet in length. In a move or reinstallation of a telephone requiring an extension of the original run, splicing is also economical when (1) taking out the old wire would spoil the appearance of the surface covered by the run due to the wires having been painted over or covered with wall paper; (2) splicing the extending run to the original run will save much time and effort that might otherwise be required to replace the entire run; or (3) the original run is more than 20 feet long and is in good condition.

Splices should be made where they will be accessible for repair or tests if need be. On the other hand, a splice should not be in a location where it would be noticeable to the occupant of the house.

Duplex interior wire is spliced in the following manner:

(1) About 6 inches of the conductors are untwisted and the green (plain) conductor of one pair is laid against the red (single tracer) conductor of the other pair with the ends flush, and 3½ inches of these conductors are cut off.

(2) The insulation is removed from each conductor for a distance equal to three-quarters length of a compression sleeve used to splice the conductors together. The bared conductors are cleaned by drawing them through plier or diagonal cutter jaws.

(3) Compression sleeves are placed on the bare conductors of one pair and compressed in two places with the special compression tool used for this purpose.

(4) One conductor of the other pair is inserted in a sleeve already crimped to a conductor of the other pair, care being taken to match conductors of the same tracer code, and this sleeve end is compressed in two places.

(5) A 12-inch length of friction tape is next cut from the roll and torn lengthwise to form two narrow strips. One strip is used to insulate the splice, starting at the center of the splice and wrapping two layers to finish in the center. (Scotch electrical tape may be used with satisfactory results on either the plastic insulated or braid-and-rubber covered wire. This tape provides a waterproof insulation for splices in plastic insulated wire that is used in damp locations.)

(6) The free ends of the other conductors are wrapped around the spliced conductors to approximate the original lay. The bare end of one conductor is inserted into the end of the sleeve on the other conductor and this sleeve end is crimped. The splice is then wrapped with the other strip of friction tape. *Figure* 128 shows the appearance of the completed splices in the duplex wire.

Triplex interior wire is spliced in the same manner as duplex wire, except that three splices are required. *Figure* 129 illustrates the method of cutting the three conductors of the triplex wire to properly stagger the splices.

Bridle wire is spliced by essentially the same procedure as that employed

for the interior wires. Two layers of rubber tape are tightly wrapped around each splice before applying friction tape to adequately protect the splice from moisture entry when this wire is installed in a damp location.

Protecting Runs of Interior Wire

INTERIOR WIRE runs are often laid close to foreign wire circuits, electrical conduit, or gas or water pipes. If the runs cannot clear these obstructions by the minimum distances specified in *Table* 16, they should be protected from contact with these objects by means of flexible loom or by two layers of friction tape, half lapped and laid on in reverse directions. This protection should extend for 2 inches on each side of the obstruction, whether the run crosses or parallels the latter.

Porcelain tubes may be used to protect wire passing through damp walls or through partitions with metal backing such as plaster on metal lath.

Interior wire runs should not be installed in the same space between wall or partition studding with electric light or power wires. The presence of these foreign circuits is indicated by a convenience outlet, switch, or light fixture on the wall.

Fig. 130—Leich Electric Company's "universal mounting" magneto telephone. Left—in desk mounting position. Right—in wall mounting position.

Installing Telephone Instruments

WHEN A TELEPHONE instrument is to be installed, the subscriber who ordered the service is the one to decide where the instrument is to be located. There are, however, certain locations where a telephone should not be installed, and if the subscriber's choice would result in an undesirable location, this fact should be tactfully explained to him. Usually the subscriber can be induced to change his selection if it is explained that his choice may endanger his personal safety or result in damage to his property or to the telephone instrument.

The following instrument locations are considered undesirable:

(1) Near doorways, stairs leading down, trap doors, or similar locations where the telephone user would have to exercise care in going to and from the telephone.

(2) Close to piled up materials or to unstable articles.

(3) In narrow hallways, especially where the instrument cord may be left stretched across the passageway by the moving of the telephone stand or table.

(4) Close to electrical fixtures, such as wall switches or convenience outlets, particularly in areas where lightning frequently strikes the power line.

(5) On damp walls, or close to steam radiators or to windows likely to be opened and thus cause the instruments and cords to become damp in wet weather.

(6) Close to grounded objects, such as furnace registers, water or steam pipes, stoves, and the like.

Dial type instruments should be installed in locations where the dial is clearly visible to the user. Sufficient artificial light should also be available so that the instrument can be used at night. Manual instruments, however, may be installed in poorly lighted locations if satisfactory to the subscriber.

The telephone instrument should be located where the subscriber can hear

Table 17—Fasteners for Mounting Wall Instruments and Bell Boxes.

Kind of Surface	Types of Fasteners for: Sets with ¾" Base (Note 1)	Sets with Shallow Base (Note 2)
Backboards Hard wood	1¼" x #8 R. H. Wood Screws	¾" x #8 R. H. Wood Screws
Soft wood Metal sheathing over wood (Note 3)	1¼" x #8 R. H. Wood Screws	1" x #8 R. H. Wood Screws
Plaster on wood lath Metal sheathing over plaster on wood lath (Note 3)	2" x #8 R. H. Wood Screws	1½" x #8 R. H. Wood Screws
Plaster on metal lath Plain hollow tile Plastered hollow tile Plaster or composition wall board (Note 4)	⅛" x 4" B. H. Toggle Bolts (Note 5)	⅛" x 3" B. H. Toggle Bolts (Note 5)
Brick	1½" x #8 R. H. Wood Screws in ¾" x #6-8 Lead Screw Anchors	1" x #8 R. H. Wood Screws in ¾" x #6-8 Lead Screw Anchors
Plastered brick Tiling on brick Gypsum or plaster block (Note 6) Concrete block (Note 6)	2½" x #8 R. H. Wood Screws in 1½" x #6-8 Lead Screw Anchors	2" x #8 R. H. Wood Screws in 1½" x #6-8 Lead Screw Anchors

NOTES:

(1). Includes backboards and wood or metal sets with backs ¾ inch deep.

(2). Includes plastic type wall handsets, small compact bell boxes, battery boxes, and connecting blocks.

(3). Attach backboards to mounting surface, using fasteners specified for sets with ¾-inch base.

(4). If attachment can be made to a stud behind the wall board, fasten the set with two 2" or 1½" x #8 R.H. wood screws to the stud, and two 1⅜" x 3" or 4" B.H. toggle bolts directly to the wall board. In some cases, a backboard may be needed for a more solid mounting of the set.

(5). Except in the case of plaster or composition wall board, use two toggle bolts placed in holes drilled in locations corresponding to mounting holes in opposite corners on the diagonal of the set or backboard.

(6). If the hole goes into a hollow part of the plaster or concrete block, substitute a ⅛" x 4" toggle bolt for the anchor.

the bell clearly when it rings. It is undesirable to install a bell box in a separate room away from its associated handset or desk stand. Most obviously, the bell box should not be located in an enclosed space, such as a closet, which might muffle the ringing. If the room arrangement is such that the subscriber cannot hear the bell clearly in other parts of the house and adjustments of the ringer will not produce a satisfactory ringing volume, the installer may suggest the installation of an extension bell.

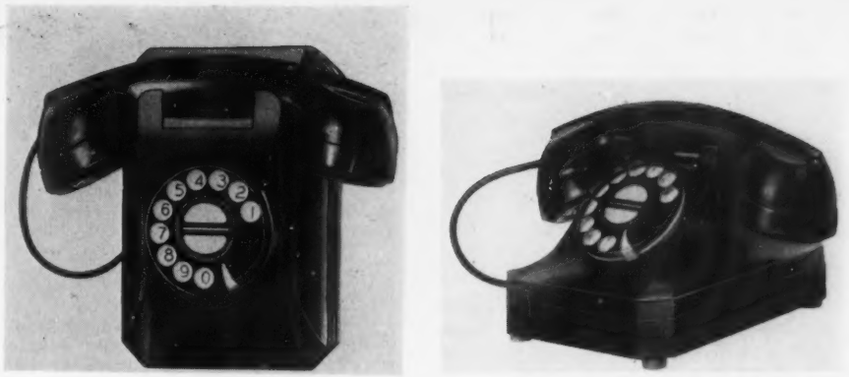


Fig. 131—Dial desk and wall hand set telephones manufactured by Stromberg-Carlson Company.

Types of Telephone Instruments

THE TYPES of telephone instruments to install depend on whether the exchange is common battery, dial, or magneto, also on the subscriber's preference for a desk or wall type of set. Since dial operation provides the best grade of telephone service, the trend among most telephone companies is towards dial service. For this reason, telephone instruments used in common battery or magneto (local battery) service should be capable of ready conversion for dial use. *Figures* 130 *to* 136 illustrate well known makes of telephone instruments that are capable of being converted to another type of service.

Common battery instruments are easily converted to dial merely by replacing an escutcheon plate with a standard dial and making a few simple connections to the internal wiring of the set. Conversion of magneto telephones is somewhat complicated by the fact that the hand generator must be eliminated and that wall sets and bell boxes are usually made of wood, resulting in a rather cumbersome appearance in comparison with the more graceful lines of modern plastic or metal handsets. Fortunately, there are now available modern combination wall and desk hand sets that are equipped with a small hand generator fitting in the space ordinarily occupied by a dial, as indicated in *Figure* 130. On conversion, the generator is replaced by a dial. The particular type of set illustrated is capable of being used as either a wall hand set or a desk hand set by reversing the position of the dial as required for mounting on a wall, or for placing on a table, the latter requiring the addition of a main cord and connecting block. Other types of sets are mounted in combination with a generator compartment which can be removed on conversion to dial as shown in *Figure* 134.

If it is preferable to use a separate bell box, combination type wall or desk handsets with an escutcheon blank can be obtained for use with metal or wood bell boxes equipped with a hand generator as illustrated in *Figure* 133.

Subscribers have the choice of several types of hand telephone sets, such as the so-called two-piece hand set (hand set and bell box), the self-contained desk hand set (ringer and induction coil in base), and the self-contained wall handset. The majority of the subscribers usually ask for, and get the self-contained desk hand set. Yet there are a number of good reasons for promoting the sale of wall mounted hand sets.

A wall instrument does not require the use of a stand, whereas the desk instrument must be kept on a table. The provision of a stand for the telephone constitutes a nuisance and is a definite hazard to small children and pets in the household. A desk instrument is easily knocked off or pulled off with chance of injury to the child or pet and the possibility of property damage, particularly if the stand topples over with the telephone.

Fig. 132—North Electric Manufacturing Company's desk and wall handsets equipped with dial. The same base is used for either type of mounting.

The wall instrument needs only one cord, that for the handpiece, instead of two required in the case of a desk handset, and there is thus one less cord to become tangled and later wear out. The wiring to the wall telephone can be concealed inside the wall or partition and no connecting block need be placed to mar the appearance of the wall.

A wall hand set presents a more compact appearance when mounted on the wall and is actually less conspicuous than a desk instrument. It can also be installed in small hallways and nooks, enabling greater privacy for conversations. With the instrument maintained in a fixed position, dialing requires less conscious effort than in the case of the desk handset.

From the telephone company's standpoint, it is more economical to place a wall hand set rather than a desk hand set in all cases where possible. Maintenance costs are lower because there is less chance of breakage of the instrument and there is one less cord to wear out.

Mounting Wall Instruments And Bell Boxes

WALL INSTRUMENTS and bell boxes should be located in accordance with the subscriber's expressed wish for a particular mounting height, but if the subscriber prefers to leave the decision to the installer, these sets should be mounted at the heights indicated in *Figure* 137. In the case of magneto bell boxes, the selected height should be such that the subscriber can easily reach the generator crank.

Dial and common battery bell boxes are mounted with the gongs at the bottom position, unless it is necessary to locate the set to avoid

interference with the opening and closing of the cover. Magneto bell boxes are mounted with the gongs at the top position. Bell boxes should never be mounted in a horizontal position as this will cause the ringer to fail to work properly.

In mounting a metal or plastic set on a rough or damp surface, it is desirable to use a wooden backboard to protect the set. *Table* 17 indicates the type of fasteners to use for mounting backboards, bell boxes, and wall instruments on various types of surfaces.

The following kinks will be found helpful in mounting sets on various surfaces:

(1) For starting holes in hard wood for #8 and #10 wood screws use a 1/8-inch drill point or #7 push drill bit. For soft wood, a 3/32-inch drill point or #4 push drill bit is satisfactory.

(2) To check the kind of material under a plaster coating, use a push drill to probe the surface, being sure to turn the drill point out in withdrawing the drill to avoid breaking out the plaster.

(3) Have all screws enter laths or studs in mounting the set on plaster and wood lath. If the first screw enters the space between laths, relocate the set to enable the screws to enter a lath and, at the same time, cover the first hole. Sometimes slanting the screws after missing the lath the first time will cause the screws to go into a lath.

(4) When drilling hollow tile or brick, use a brick drill to drill the holes. Apply light and rapid blows in drilling through hollow tile to prevent breaking out the inner surface of the tile. When the brick or tile is coated with plaster, use a sharp twist drill (bellhanger bit) and ratchet brace to prevent breaking out the rim of the hole in the plaster. On reaching the brick or tile underneath change to a brick drill and continue drilling to the desired depth.

(5) Avoid drilling holes in the mortar joints of brick or tiling as screw anchors will not hold properly in the mortar. Instead, locate the holes at least one inch from the edge of the brick or tile block.

(6) Holes for screw anchors should be drilled to sufficient depth to provide clearance for the screw ends at the bottom of the hole. Anchors should be long enough to extend through the outer plaster coating into the brick underneath.

Fig. 134—Kellogg Switchboard and Supply Company's desk-type Masterphones equipped with generator compartments.

Fig. 135 — Kellogg Masterphone equipped for dial service.

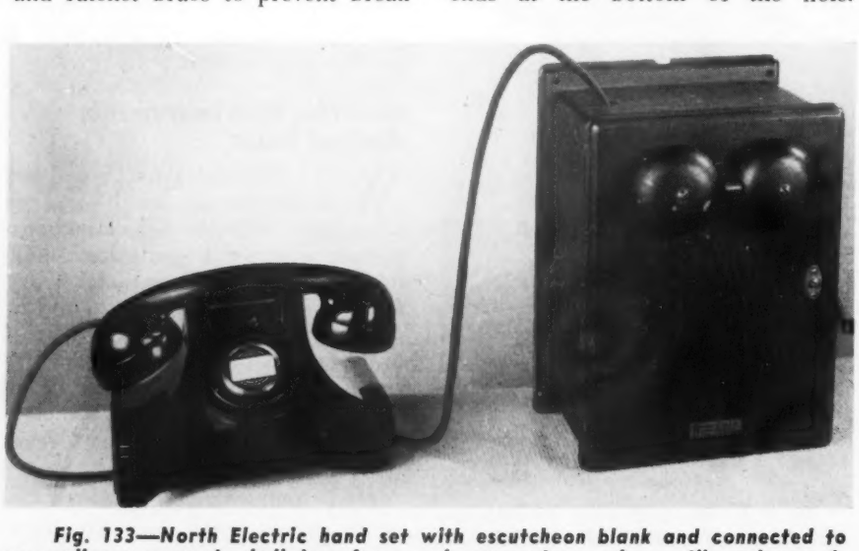


Fig. 133—North Electric hand set with escutcheon blank and connected to an ordinary magneto bell box for use in magneto service until exchange is converted to dial operation.

Mounting Desk Instruments and Connecting Blocks

THE LOCATION for a desk instrument is usually something of a problem, as it must be placed where it will be least likely to be damaged or to cause damage to property of the subscriber. For this reason, it is not desirable to locate the instrument on a small, unsteady table where it might be easily knocked off. The desk set should not be placed on a glass surface or on an expensively finished surface which might be damaged if the handpiece were to fall on it.

Some people will place a self-contained hand set on a soft cover or pad on the table to protect the finish. The installer should explain to the subscriber that a soft pad will absorb the ringing volume and may weaken it to such an extent that the subscriber cannot hear the telephone ring in another room. For maximum ringing volume, the set should be placed on a bare surface.

The connecting block for a self contained handset should be mounted on the baseboard whenever possible. If this cannot be done and the mounting surface is unsuitable for locating the block directly on it, a small backboard may be made and suitably finished for mounting the block.

Testing Telephone Instruments Following Their Installation

WHEN A TELEPHONE instrument has been installed, the final step is to test the operation of the instrument and make sure it is ready for use by the subscriber. The following steps will assure satisfactory operation of the telephone:

In dial exchanges of the small community size, the station reverting call number is dialed to check the bell operation. If the bell taps while dialing, the ringer leads are reversed at the terminal strip. If the bell still taps after reversing the lead connections, the tension of the biasing spring on the ringer should be increased until the bell no longer taps. The tension should not be increased to the point where the bell will not ring properly.

On divided ringing lines, if the station bell fails to ring, the line connections should be reversed and the same number again dialed. If the bell still will not ring, the biasing spring may be too strong. In this case, the tension should be reduced to the point where the bell will ring satisfactorily without causing tapping

when dialing. If necessary, the ringer should be adjusted to produce a ringing volume satisfactory to the subscriber. This is done by adjusting the armature gap (if practicable) and the clearance of the clapper from the gongs.

Talking tests are conducted with the assistance of the test board or an operator by talking into the transmitter to check the transmission quality. If any difficulty is experienced in hearing the test man or being heard by him, the instruments and its connections should be checked to determine the cause of the trouble. If the trouble cannot be readily cleared and it is apparent the instrument is at fault, the set should be replaced.

Noise tests are made by shaking the instrument cords and noting if this action results in cut-outs or a scraping sound being produced in the receiver. At the end of the conversation, the installer should listen in the receiver for frying sounds which are a sure sign of a noisy transmitter. Noisy transmitters or cords should be replaced.

As a final step, the test board or the operator should be requested to dial the station number to make sure the station number and code ring are correct for the subscriber's station.

In common battery exchanges, the procedure is to first ring the operator and check the line number with her. The operator then connects the installer to the test board, or if there is none available, she is requested to assist with the tests.

The test board or the operator then rings the station to check the operation of the ringer. Adjustments of the ringer are made as necessary to produce a satisfactory ringing volume. In divided ringing systems, if the station bell fails to ring, the line connections are reversed and the station again rung. Talking and noise tests are made in the same manner as previously described for tests in dial exchanges.

In magneto exchanges, the same sort of tests for common battery instruments are made, where applicable. In addition, when checking the line number with the operator, the code ring for the subscriber's station is obtained.

On metallic ringing lines, one side of the line is disconnected and the generator is cranked to test the operation of the bell before having the operator ring back on the line. In divided ringing systems, the line wires are disconnected and the proper line terminal and the ground terminal

Fig 136—Automatic Electric Company's Type 40 (desk) and Type 50 (wall) Monophones.

shorted together with a screwdriver or by other suitable means before operating the generator. The line wires are then reconnected and a test ring is made from central office. If the ring fails to come through, the line connections are reversed. It is important in this case to check for cross ringing by reversing either line connection even though the station ring comes through the first time. Cross ringing is due to insufficient tension of the biasing spring on the ringer or to too strong a generator

(*Please turn to page* 54)

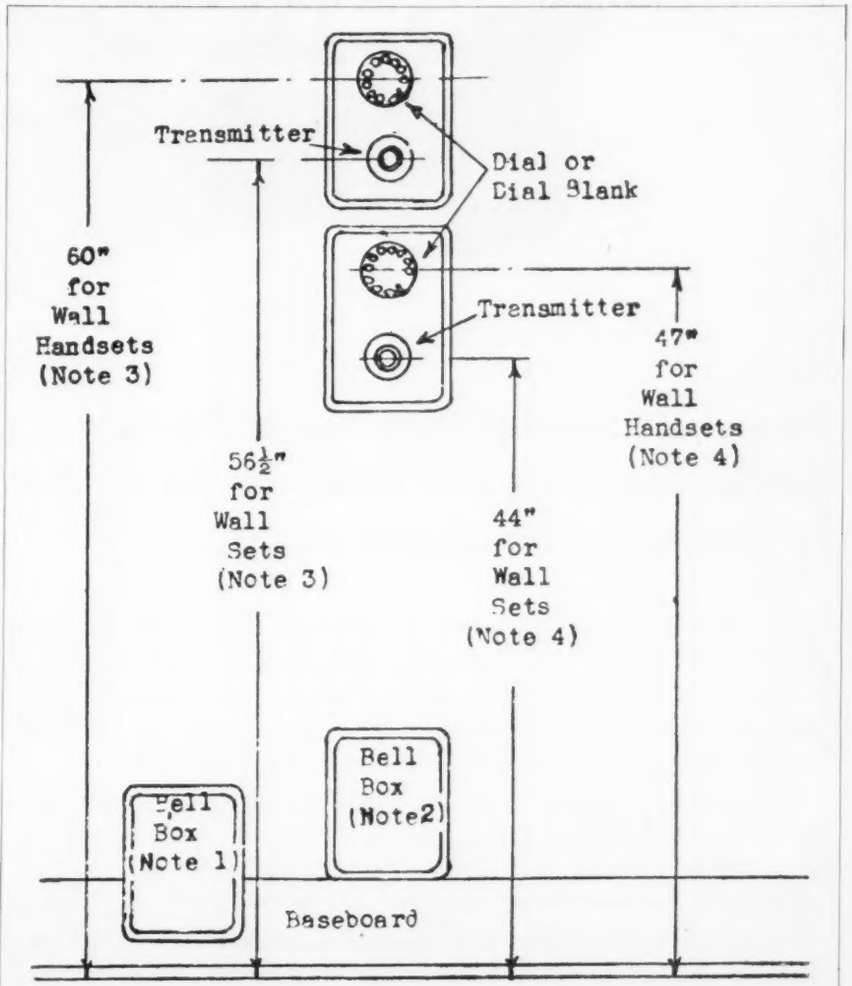


Fig. 137—Showing mounting heights of wall instruments on wall and proper locations for bell boxes.

Notes:

(1) Bell box on wood baseboard where wall is expensively finished, or is composed of material too soft to properly hold the bell box without a backboard or too hard to drill into.

(2) Bell box on walls to which it can be easily attached.

(3) For subscriber in the standing position.

(4) For subscriber in the sitting position.

any exchange operating a Leich Dial System can expand to take care of any future growth!

and....no matter how large the board grows.... additional lines and links can be quickly and inexpensively jacked-in by their own people

It's a wonderful, reassuring feeling to know that, once you've installed a Leich Dial System, you never have to worry about your exchange outgrowing the switchboard.

Your own man can add ten lines to your Leich dial switchboard in ten minutes. He can add a finder-connector link in an hour or so. No soldering, no intricate wiring, no factory installer needed.

Even more reassuring is the fact that you can grow by hundreds of lines too, by simply adding 100 line equipment bays. You can expand your Leich Dial System from 200 to 300 lines, from 300 to 400 lines, and so on up. It will be less expensive, faster, and less complicated than with any other similar type dial system.

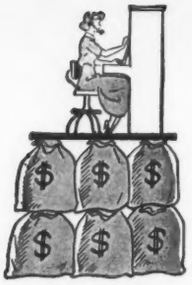
The Leich Dial System was designed to provide a simplified, easier to understand and operate dial switchboard. Installations all over the United States are operating proof that this is so. Every desirable service feature can be furnished by the Leich Dial System. It will cost less to operate and maintain it. There's less to go wrong . . . and . . . there's also the comforting idea that your investment is safe because your Leich Dial System can be quickly, economically expanded whenever and however your exchange grows. Write today for complete information on the Leich Dial System. Leich Sales Corporation, 427 West Randolph Street, Chicago 6, Illinois.

LEICH

ANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

Small Company Talk

By Bill Corman



MR. CORMAN'S reply to a letter received from a small company owner may provide the answers to some of the problems facing you. . . .

HI, NEIGHBOR! I recently received a letter from a man running a small telephone company who, like a lot of the rest of us, is trying to figure out what he should do. Because the answers I have given him may help to clear up some problems in other people's minds, following is my answer to his letter.

Dear Mr.———:

Your letter has been received, and while I can't tell you what to do in your particular case without a great deal more information and study, I can give you some things to think about that may dispell some of the ideas that you put into your letter.

The thing that stands out foremost is your reference to the advisability of remaining Magneto and expanding on that basis. Maybe I take the wrong attitude in this matter of telephone expansion, but to me it has got to be basically a matter of balance between the income and the outgo of dollars. You mention one of the advantages of Magneto: It will enable you to keep your rates lower than otherwise. But is this true? Let's look at it.

You have something over 200 stations now, and you mention 1000 possibilities of additional phones in your service area. If just over half of these actually would take telephone service, you would be over the 750 station mark, and would have to pay your operators 75 cents per hour with time and a half for all work over 40 hours per week. Just how much would this cost you. Figuring it at the absolute minimum, there are 8,760 hours in a year, and, at 75 cents, this figures to $6,570 per year *just to keep one operator at the board all the time.* As you get larger you will find that one operator on duty at a time is not enough, and will have to put on more. Furthermore, you will have certain office work which will have to be done. Also, you will find that it will be next to impossible to operate without having occasional overtime. At the 750 station mark, you will be extremely lucky if your operators and office girls are costing you less than $10,000 per year, which, when you figure it down, is about $1.10 per month per telephone, *just for operating and office clerks.* And we have said nothing about maintenance costs, overhead (management, bookkeeping, etc), depreciation, taxes, interest (if any) and your necessary profit on your investment.

So, will be it be so cheap after all, for you to remain Magneto?

Nor is that the end of the Magneto picture. There was strong talk just before the Korean war about a hike in the Minimum Wage to $1.00 or higher. As to what will be done about this now is anybody's guess, but there is one thing that can be said with almost virtual certainty: The Minimum Wage will not get any less.

There is also a practical physical consideration. Before you get to 750 stations, the chances are that you will have to have a switchboard set up on a multiple appearance basis (provided you stay manual), so that your present board would have to be replaced (even if you had added to it in the meantime).

And we still haven't reached the end. To maintain your Magneto system and add between 500 and 1000 phones, you would either have to buy new telephones or used ones. New Magneto phones will cost an average of about $10 to $15 dollars *each more* than new Common Battery phones, and $5 to $10 *each more* than new dial phones. If you buy used Magneto telephones, your maintenance and depreciation on them will be higher than on new phones, and I believe you will find, that, in the long run, they will cost you as much or more than new equipment.

All of this adds up to one thing—the day of low-rate telephone service is over *regardless of what kind of central office equipment you have*; Dial is expensive, Common Battery is expensive, and Magneto is expensive. Any company that has the possibility of having 750 or more stations must figure on its service being high cost service (high-cost, however, only in relation to the old rates that many companies are still charging—it is *not* high-cost in terms of the value of service rendered when compared to any other service or commodity that is bought).

This fact leads logically to the next. If you are going to have to charge more for your service, your subscribers are going to expect more or better service. The only way to provide more and better service is by improving the quality of your plant and the elimination of the Magneto service, replacing it with either common Battery or Dial. And the probabilities are that Dial will provide the best answer, for with Common Battery, you still have the high labor cost of operators. Only if you are a full toll center, or if the possibilities of reaching the 750 station mark are extremely improbable, would it be profitable to consider Common Battery.

Now let's go on to another idea

that you mentioned—the use of native poles in order to get by on the construction a little cheaper. Again, I like to think of this in a dollars and cents way. Perhaps your experience in your part of the country is different from ours down here, but we find that native poles available now will last from 5 to 10 years. Creosoted pine will last an average of better than 20, and probably better than 25, but let's just call it twenty. We find that the cost of setting native poles is at least equal to, if not more than, setting the creosoted pine, and for an average 20 foot pole, this labor cost is around $5. If you have to pay $1 for the native pole and $5 for the pine pole, the respective total costs will be $6 and $10. The $6 pole will last ten years, or 60 cents per year. The $10 pole will last 20 years, or 50 cents per year. In addition to this the creosoted pine poles look better, are easier to climb over the whole life of the pole, and are much more uniform in appearance, lasting qualities, strength, etc. On top of this, the anchors, guys, brackets, cross arms, insulators, wire, etc., that will be placed on these poles will be the same regardless of the type of pole, so that the difference in the overall cost of the whole job will be very little, and the life of the basic item, the pole, will be doubled by the use of the better pole. We, in our own company, think it is false economy to use anything less than the best when building outside plant. For not only does the added life of high quality line work more than pay for the added cost, but the service furnished over such lines will be consistently better.

One of the reasons that you may have felt that it would be better to remain Magneto, to go back to that idea for just a minute, may have been the possibility of the use of grounded lines. Again, I don't know your particular section of the country too well, but if you are still *successfully* using grounded circuits, you are one of the very few who can still do so. Power interference has just about put the grounded circuit out of business, and I think it will be only a matter of time until they are completely eliminated.

For a moment now, let's turn to the subject of money. Both of the points that I have attempted to make up to now mean the expenditure of money. The installation of dial service, and the building of outside plant in good style are both expensive. And when a company like yours goes in for an expansion and betterment program, you are no longer a little business. 750 modern dial stations with the necessary accompanying plant will cost between $150,000 and $225,000, or from two to three hundred dollars a station. It goes without saying that rates have to be sufficient to cover such costs, and that service has to be good to justify such rates.

That may sound like a lot of money, but there is, today, simply no logical alternative. The only possible alternative is getting together a few thousand dollars to patch up what you have so that you can add more telephones to it, and you will find that, 1, you can never catch up to your demand that way; 2, your subscribers will never be satisfied; 3, it will cost a whole lot more than you think it will; 4, when it comes time that you do have to change over to Common Battery or Dial, most of the money you have spent will be of little benefit to your new system, and you will have to spend the money all over again. The experience is that when a Magneto system is converted, there is little, if any, value to the existing Magneto plant, other than salvage.

Nor will doing part of the job be of much help. You can't start out by buying and installing a dial switchboard and dial telephones—for the chances are about 1 in 10 that it would not work if you did. The first job that must be done in any change from Magneto to either Common Battery or Dial is to put the outside plant in first class shape. Common Battery service, either manual or automatic, will not work properly (and it may not work at all) if the outside plant is not good—that is, if it has tree grounds, damp cables, missing, small or broken insulators, bad joints, poor transposing, or incorrectly engineered long lines.

But, while it will be a partial step, putting the outside plant in good shape is not enough either, and if that is as far as your money will go, you will be just about as bad off as you were to start with. In other words, there is no satisfactory halfway answer—it is either "whole-hog" or nothing.

Now, can and should you get this money in order to go "whole-hog"? My personal opinion is that you should and that you can get it. As to whom you should get the money from, that is something that you must decide for yourself. It just so happens that we, in this company, got our money from a private source, but I think it is no secret that we had applied to REA and had had some preliminary negotiations with them, and that, had we not been able to swing the private deal, we would have given very serious consideration to closing a loan with the REA. As we saw it, we simply could not stop expanding and improving, no matter how badly we might have wanted to, or how expensive it was to keep on. Yes, I think you can get it. You will undoubtedly have to raise some equity capital (from 20 to 40% of the total value of your plant when completed) but it seems to me that it would be better to use that as equity capital and then borrow the rest of the money necessary to do the job, rather than to use that equity to patch up and add to your present system.

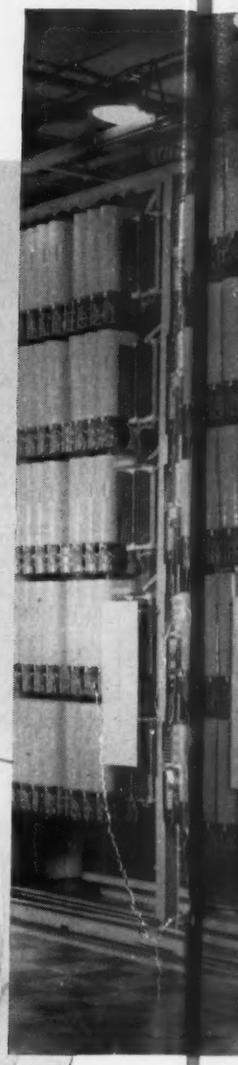
I rather imagine that even harder than convincing yourself that you can get it, will be convincing yourself that you *should*. But let me give you one example of what can be done—what has been done—in a very similar situation to yours. We bought this property here in Atmore over 7 years ago. We had 300 very old magneto telephones, a one and one-half position magneto board in a tar paper and tin building, and about as hopeless an outside plant as you can imagine. We now have one of the nicest brick buildings in town, a completely new 5-position common battery switchboard (we are a full toll center), all new modern handset telephones, full selective ringing on all party lines, an almost completely new outside plant, and 1300 stations. We have given our customers a class of service that is second to none, and they appreciate it—and, incidentally, us for giving it to them. We have a telephone system that we, and they, are proud of. To do this we have had to spend money like drunken sailors, and are still spending it, but we think we have done the right thing. In fact, we don't see just how we could have done much of anything else. We believe that just about the same possibilities exist in many other small companies. It very probably exists in yours.

There should be, not too far from you, a small or medium sized company that has gone into the type of program that I am talking about. I believe it would be a good thing for you to go to see one or more such companies. Take along some of your influential subscribers—the ones you would get to help you raise your equity capital—so that you and they could see what can be done. Seeing an actually accomplished job is much more convincing than merely reading about it.

Sincerely,
Bill Corman

"KNOW-HOW"
Makes The Difference

THIS IS "SURGERY"— where white-robed men perform miracles, with a skill born of long experience. Here is "know-how" at work!



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STWGER AUTOMATIC EQUIPMENT, too!

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rowgatic HAS proved itself. Right usanenges, small and large, it is meet- servicroving its economy and depend- d evelion is safeguarded by Automatic Electric's complete service, from study of specific needs, through precise engineering to meet them, installation when desired, and expert counsel after it is in service.

All this is Automatic Electric "know-how" at work. Why not put it to work for you?

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

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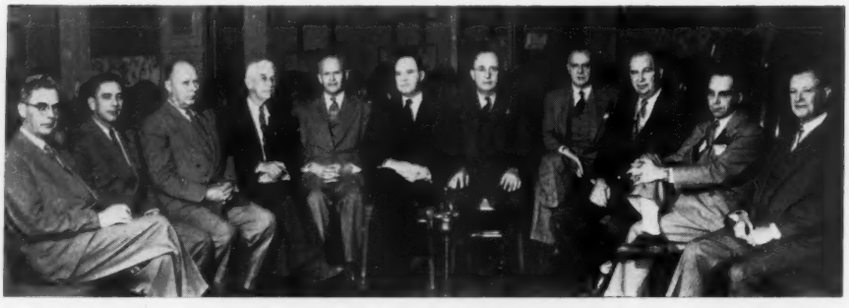
1033 West Van Buren Street, Chicago 7, U. S. A.

Mrs. Mary Lou Stosberg, PBX Instructor, S. W. Bell Tel. Co., Kansas City, Mo., was in charge of the traffic conference at the 1950 convention of the Missouri Telephone Assoc.

F. C. Gokey, recently elected executive vice president, Highway Trailer Co., Edgerton, Wis. Mr. Gokey, who is a native of Edgerton, location of the major plant and executive office of the Highway Trailer Co., has been connected with the company for the past 24 years. Starting in the plant and moving into sales, he was instrumental in building up a Public Utilities equipment division that has become a major segment of the company's business.

All territory and division managers of L. M. Berry & Co. attended recent Directory Advertising Sales Conference held at the Biltmore Hotel, Dayton, Ohio. Sitting around the table and reading clockwise from the foot of the table are: J. E. Whalen, Dayton, Ohio; R. W. Brundige, Dayton, Ohio; C. H. Martin, Rochester, N. Y.; B. D. Addington, Bristol, Tenn.; Wm. Maier, Jr., Memphis, Tenn.; J. E. Troskosky, Rochester, N. Y.; J. Z. Wilson, Chattanooga, Tenn.; B. E. Hale, Birmingham, Ala.; J. P. White Louisville, Ky.; I. J. Klass, Dayton, Ohio; J. W. Craig, Jr., Dayton, Ohio; J. W. Berry, Dayton, Ohio; B. H. Bear, Dayton, Ohio; W. A. Steuer, Dayton, Ohio; H. F. Scott, Milwaukee, Wisc.; F. L. Hawker, Rochester, N. Y.; W. L. Wolcott, Nashville, Tenn.; S. H. Rainey, New Orleans, La.; D. T. Grantham, Jackson, Miss.; Ralph Maner, Tampa, Fla.; F. D. Carlton, Dayton, Ohio; L. E. Getzler, Harrisburg, Penna.; H. C. Evans, Warsaw, Ind. and J. J. Mullin, Louisville, Ky.



Officers and directors of the Missouri Telephone Association: C. W. GOTTRY, Columbia; GEORGE A. HEARNE, Warrensburg; CARL SPAID, Kansas City; SECRETARY R. W. HEDRICK; Vice President R. R. COFFMAN, Cameron; J. M. ROBERTS, Gallatin; F. M. BROWNE, Kansas City, Kan.; W. S. MILLER, St. Louis; W. E. NAYLOR, Kansas City, Kan.; J. R. CARTER, Perry, and T. L. LEONARD, St. Louis.

The above photos were taken at the Missouri convention by photographer, ELVIN DURR, Clinton, Mo., division plant superintendent, United Telephone Co.

News Briefs

(*Continued from page 22*)

ratories and the Western Electric Co., the Bell System had 601,511 employees on Sept. 30, it was reported. The total for the operating companies was 524,848, and the total for the entire telephone operating industry, Bell System and Independent, covering operating companies only, was estimated at 610,000.

Missouri Independents Hold Annual Meeting

MEMBERS OF THE Missouri Independent Telephone Association held their 1950 annual convention at the Hotel Muehlebach, Kansas City, Mo. Directors elected for three-year terms were: J. M. Roberts, Gallatin; W. E. Naylor, Kansas City, and Warren S. Miller, St. Louis.

The directors elected the following officers: President, Foster B. McHenry, Jefferson City; first vice president, R. R. Coffman, Cameron; second vice president, H. M. Harned, Brentwood; third vice president, C. T. Davis, Sullivan; fourth vice president, R. E. Williams, Oregon; R. W. Hedrick, secretary-treasurer, and Katherine A. Bauer, assistant secretary-treasurer.

The Theodore Gary Chapter, Independent Telephone Pioneer Association met during the convention. Officers elected are: F. M. Browns, Kansas City, president; T. L. Leonard, St. Louis, vice president, and Katherine A. Bauer, secretary-treasurer, Jefferson City. Directors elected are: Miss Mary Ann Borne, Higginsville; Noel Rice, Ironton, and Dee Rice, Clinton.

Highlights of the 2-day meeting included address by: Clyde S. Bailey, executive vice president, United States Independent Telephone Association; Ray W. Smith, president and editor, Telephone Engineer Publishing Corp., Chicago; M. W. Waggoner, public information supervisor, Southwestern Bell Telephone Co., St. Louis; Hugh P. McTernan, manager, Kansas City (Mo.) Field office, Social Security Administration, and Richard A. Dell, assistant chief, application & loans division, REA.

Henry M. Altepeter, division plant engineer, Southwestern Bell Telephone Co., St. Louis, presided at the plant conference. Mrs. Mary Lou Stosberg, PBX. Instructor, Southwestern Bell Telephone Co. presided at the traffic conference.

New REA Allocations Total Over $1.5 Millions

IN SHARPLY increased activity in finalizing loan allocations, the Rural Electrification Administration (REA) has issued farm telephone loan allotments to six organizations, one cooperative and five Independent companies, totaling more than $1.5 million.

Following the previous pattern, the largest single loan,—$624,000,—went to a co-op, the Eastex Telephone Co-op, Laneville, Tex., for a system expected to serve about 2,250 subscribers when it is completed. The co-op will be built around a nucleus of two small existing mutuals, now serving 263 members over 90 miles of farmer lines. The co-op plans to construct eight new dial central offices, 511 miles of lines, and install dial service throughout the system.

A $401,000 loan allocation went to the Texas Farmers Telephone Co., Belton, Tex., now operating two magneto exchanges, and serving 95 sub-

(*Please turn to page 57*)

QUALITY CONSTRUCTION *from* COAST TO COAST!

We specialize in the construction and maintenance of new, outside telephone plants or the repair and maintenance of existing plants. Our nation-wide experience, highly skilled personnel and the finest of modern equipment assure you a top quality job completed quickly and economically. Your inquiries are invited.

- All work done to A T & T specifications or the equivalent unless specifically requested otherwise by the customer.
- Technical advice on engineering and construction and assistance in obtaining materials assure you economy and a long-lasting, trouble-free plant.
- We are ready to assist you anytime, anywhere. Let us give you time and cost estimates on your construction, maintenance or repair jobs. No obligation. Call us today!

NEALE CONSTRUCTION CO.
ENGINEERING • CONSTRUCTION • MAINTENANCE
TOPEKA, KANSAS PHONE 4-2621

The benefits of growth

The telephone industry is big in several ways. It is big physically . . . it's big in its way of doing business and . . . in its capacity to serve our nation in peace or time of emergency.

The advertisement on the opposite page discusses this matter of size. It appears in national magazines during January.

AN ADVERTISEMENT OF THE

Bell Telephone System

Big enough for the job

We live in a big country and it takes a big telephone system to give good service to millions of people.

The Bell System is equipped to handle today's more important job because it has never stopped growing. It has kept right on building to make service better and provide more of it.

Times like these emphasize the benefits of such growth and the value of a strong, healthy telephone company to serve the Nation's needs.

The Bell System aims to be big in more than size.

It aims to be big in the conduct of the business—in its plans for the future—in doing its full part in helping to keep America secure.

BELL TELEPHONE SYSTEM

Fig. 1 — Recently developed pole-moving frame attached 5 feet from pole bottom. The frame base is attached at two points to the rear of the truck and hinged to move vertically.— (Thanks to Carl H. Cloudy, editor of THE TRANSMITTER, for providing photographs to illustrate the article on "New Pole Moving Technique.")

"How To Do It" Suggestions

By John G. Reynolds
Managing Editor,
Telephone Engineer Publications

Fig. 2—Winch line attached 14 feet from base of pole is raising pole with crossarms and wire still in place. Weight is about 1900 pounds.

A NEW USE for a machine that's been around for some time is going to help speed up part of the work of long distance operators. The "TelAutograph" telescriber has been used for various kinds of communications in the Bell System and other businesses for many years. But now it's had a trial debut in the operating room and has proved helpful in toll work.

Quite often, telephone users report in on long distance calls but don't know who has called them from a particular city. The call is turned over to an operator in that town who takes care of the special position, which handles this type of call. The procedure which is followed then is sometimes rather lengthy. The operator must call each of the offices within her toll center and, each time, wait for a search to be made for the ticket. With a telescriber at this position, all she must do is write her request on the electrically operated instrument. While she writes, an exact copy of her message is recorded at receiving sets in each of the offices. Then, following a check through their tickets, the operators in those offices send replies on their machines.

Five telescribers will be put into operation in Cleveland soon, one in each of the Ohio Bell's toll operating offices. Success of the system will pave the way for its adoption in other toll centers having several offices. All indications point to a method which will not only save time, but also help make for smoother operation.

New Pole-Moving Technique

PEOPLE driving along Route 213 between Kennedyville and Locust Grove on Maryland's Eastern Shore recently saw a new pole-moving technique demonstrated.

The problem, according to *The Transmitter*, was to move some 90 poles back 10 to 15 feet without interrupting service on the thirty circuits they carried, including long distance lines to Baltimore, Philadelphia, Elkton, Galena and local Still Pond service.

The answer to the problem lay in a recently developed pole-moving frame, (*Figures* 1-5) which permits the truck to lift the pole from the ground with the wires still attached and carry it vertically to its new location. Another new wrinkle that helped speed the operation was to dig a large hole with a digger on the field side of each pole butt and then to push the pole into this new hole before starting to move it. This eliminated all ground resistance

and the derrick thus had only the weight of poles and wire to lift, making use of a ground prop on the derrick head unnecessary. The crew moved approximately 90 poles without causing a single case of trouble on the telephone circuits.

Removing Iron Filings From Polarized Relays

POLARIZED RELAYS such as coin relays in paystations have a permanent magnet as part of the magnetic circuit of the relay. The armature and pole pieces, as a consequence, attract particles of iron which interfere with the operation of the relay. Owing to the shape and location of the pole pieces, it is difficult to remove the particles without dismantling the relay or returning it to the shop. To avoid this necessity, repairmen assigned to the maintenance of paystations make use of a piece of electricians rubber tape to pick up the filings.

This is done by stretching the tape until it is quite thin and slipping it between the armature and a pole piece. The armature is then pushed down to press the tape between the armature and the pole piece. The bits of metal are embedded in the tape and come away when the tape is pulled out. The other end of the armature and associated pole piece are cleaned in the same way with another piece of rubber tape.

Teach Subscribers To "Call By Number"

YOU MAY have seen a picture in a recent Bell System advertisement of a likely looking young lady who offered a "*tip for top long distance service.*" Her picture recently appeared in newspaper advertisements in all Ohio cities within the Ohio Bell territory. In following weeks, the same newspapers will picture other people who are "in the know" about long distance service. All these folks will urge telephone users to "*call by number.*"

Right now, "calling by number" is in the limelight because telephone company officials know that the way people use their telephone has a lot to do with their getting the most out of their service. The companies provide the best mechanical equipment and operator service that they can. With the addition of toll dialing equipment, they now can handle more long distance calls than ever before.

When a customer doesn't "call by number," the operator must call the distant city to get that number. This means extra time spent on a call that could be dialed directly. Other calls that require the service of an operator may be waiting. To the cus-

Fig. 3—Pole has been lifted out of ground and truck has been backed up so that pole is over the hole at new location.

Fig 4—Pole has been lowered in new hole. Pole-moving frame has been released. Winch line is still around pole.

Fig. 5—Pole has been moved and tackle released. Beside truck are members of the Chesapeake & Potomac Telephone Co. crew that did the job: S. J. Sparks, driver; H. E. Fisher, W. R. White, Jr., and Robert F. Lord, foreman.

tomers, this means a slow-up in their service.

So the wise-looking people in the ads are there to remind telephone users that "calling by number" is a good habit. It helps to make better, faster service for them.

Other Types Of Shunt Unbalances

ANOTHER source of shunt unbalance or leakage to ground is that caused by connecting ringers to ground in order to get some form of selective or semi-selective signalling. The use of grounded central office drops for "secret operator signalling" is also a source of unbalance. The average rural line with several miles of exposure to multi-grounded rural power lines, will usually have an induced voltage of such magnitude as to make it virtually impossible to use grounded ringers unless they are of the high impedance type.

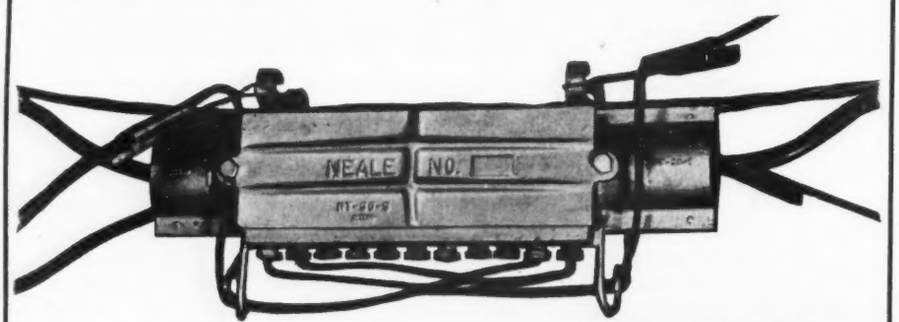
The ordinary low impedance ringer has an impedance at 1000-cycles of roughly 22,000 ohms, but a good high impedance ringer designed to minimize induced power current flow to ground will have an impedance as much as 200,000 ohms at 1,000 cycles. Even the high impedance ringer is often not enough to limit the circulating noise currents created on a metallic line due to grounded ringers.

One method of making a test of the effectiveness of gaseous tubes is to try out a tube in series with a ringer at various points along the line.

Ionize the tube by ringing across the line with a magneto test set and note whether the tube remains ionized. A sensitive A-C milliammeter in series with the ringer would be helpful in noting whether the tube instantly restores to the non-ionized condition after the ringing pulse is over. Measurement of the A-C voltage (with a high impedance meter) stand to earth from each side of the line would also be helpful in appraising the possible success which could be obtained by the use of gaseous tubes on grounded ringer lines.

The test described above should preferably be made with all subscriber's ringers disconnected, otherwise the connected ringers would act as drainage coils and the voltage read would not be a fair measure of the actual voltage standing to earth.

Save 5 to 15 Man-Hours per Cut-in with the *NEW NT30 NEALE TERMINAL!*



■ Yes . . . now you can cut down costly man-hours on cut-ins! Now you can save money on terminal replacement costs! The new NEALE NT30 TERMINAL makes it possible for one man—WORKING ON THE POLE ONLY 15 to 45 MINUTES—to make a complete cut-in! No wire cutting or splicing necessary. No joints to wipe . . . no seams to float.

■ Move the NEALE NT30 to another location whenever desired. Forget about retailing or junking used terminals, because with the NEALE, you can use it over and over again.

■ Heavy pressure vulcanizes the long, heavy rubber sealing plug in the NEALE NT30 to the cable sheather and terminal shell. Terminal is then gas-pressure tight, moisture and insect proof . . . resistant to face plate leakage. Entire unit can be safely wired or gas-pressure tested.

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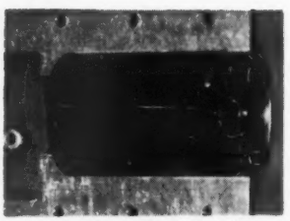
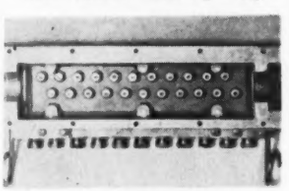
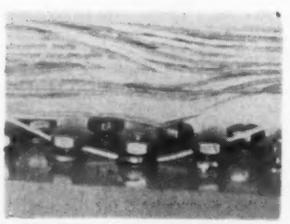

End Rubber Sealing Plug


Face Plate


Connection to Cable Pair

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Rolling Coin Boxes . . .

FIRMLY established up till now in drug-stores, restaurants and other public places, the coin box telephone boarded a Pennsylvania Railroad train recently to try out the mobile side of Bell System life.

This traveling pay telephone rides the club car of a New York-Washington express, installed in a soundproofed booth. Over the door of the booth hangs a sign which lights up to tell when there's "Telephone Service Available." If the train's outside of a mobile service area the sign darkens and only a busy signal is heard when the receiver is picked up. The same thing happens when the channel is in use. Trains share channels with highway mobile service subscribers — it's something like a party line—and if a mobile-serviced truck or car is making a call, "the line's busy."

Collection is post-pay. Charges for the first three minutes must be deposited after your number is reached, and overtime is collected when the conversation is finished.

QUESTIONS and ANSWERS

IN THIS ISSUE, Mr. Mitchell discusses —The Voltmeter in Telephone Line Circuit Maintenance.

PROBLEM: SOLUTION:

By Jay G. Mitchell

QUESTION: I have been reading your QUESTIONS AND ANSWERS department for quite a long time now and have never had any occasion to use its help till now. Our company has installed new North All Relay systems in some of our smaller exchanges. These North units have an arrangement whereby one can test lines that are in trouble.

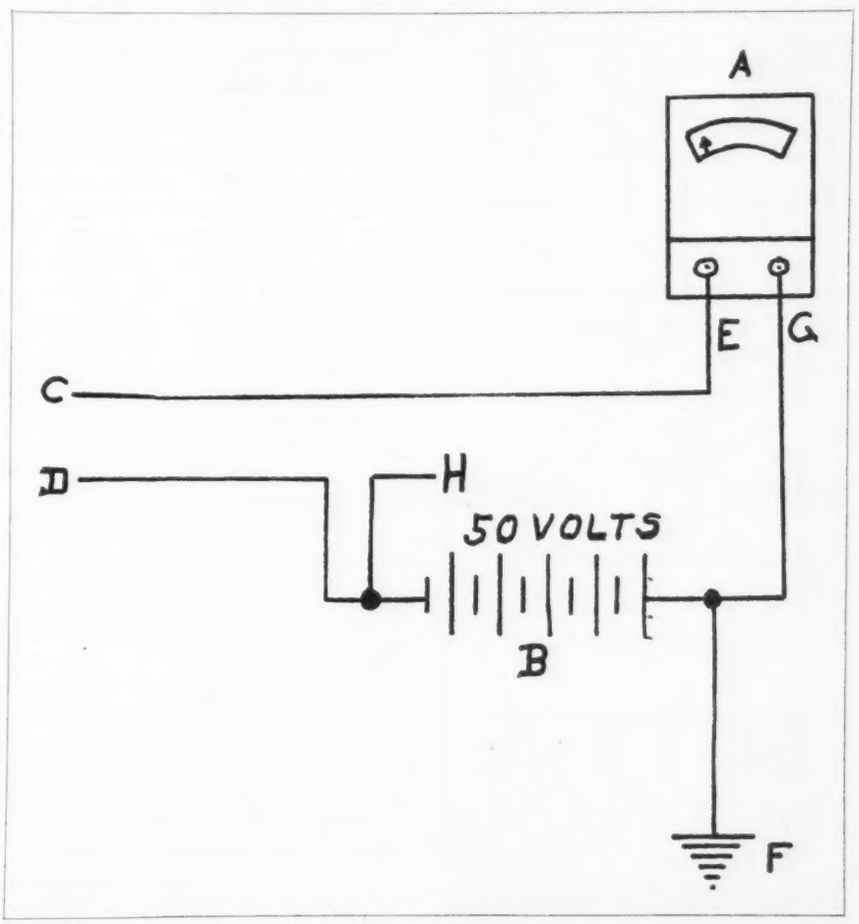
My problem is this. I wish to place a shunt in the voltmeter circuit so that anyone testing on a line may read the voltmeter and tell how far away the trouble is. The voltmeter is calibrated from 0 to 80 volts, in two volt steps, and is a Triplett meter. How is one able to arrive at the proper resistance of the shunt to be used?

I would like also to know how one would arrive at the proper readings on the voltmeter with the shunt key thrown. Each two volt step would equal so much resistance on the line on test. The battery is furnished from the exchange battery of 50 volts.

I have the same thing on our test board at one of our exchanges. The testboard is Automatic Electric Testing Turrett. It has a Weston voltmeter, Model #269, and is calibrated from 0 to 75 volts in one volt steps.

I hope that I have explained my problem enough for you to give me an answer. Thank you.

ANSWER: This inquiry calls only for the discussion of the arrangement of a voltmeter so that it shall afford a means of determining, by indicating the resistance of a circuit loop, the approximate distance in ohms by route of wire from the central office to certain classes of line trouble. In several ways the voltmeter, when operated by an experienced wire chief, may be useful in other tests if it is of the proper type. It may be used, for illustration, to determine the resistance value of the insulation between the two conductors of a pair or between either one of two conductors and ground; when of the proper high internal resistance it may be used to determine the distance (capacitance of pair that is open) by route of wire to an open circuit by the charge and discharge method and it is of the greatest possible value in routine testing of newly established service to obviate several possible unfavorable circuit conditions that would interfere with the rendition of satisfactory service to the newly connected subscriber. In other words the voltmeter, if of the proper type, may be used to measure approximate line and loop resistances and insulation and also circuit capacitances. The resistance measurement is based on the ohmmeter principle and the capacitance measurement is based on the fact that commercial direct current voltmeters are essentially calibrated D'Arsonval ballistic galvanometers reading volts whose needle throw for a capacitance discharge is directly proportional to the discharging body's electrical charge. The resistance of the voltmeter, the voltage of the battery with which it is to be used and the arrangement of the testing keys of the wire chief's testing equipment must all be con-



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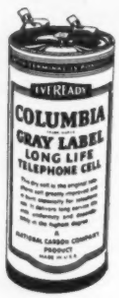

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sidered in planning the testing facilities of the telephone office. When the equipment has been installed and its use carefully studied and the results reduced to permanent records it will be found that time will be saved in the cost of plant maintenance and that the establishment of high plant standards will be facilitated. With modern improved Central Office Equipment it is not a matter of choice as to whether the standards of the plant shall be high or not it is a matter of necessity that circuit insulation, for instance, be maintained at a consistently high value. Because of this fact the telephone manufacturers are all prepared to supply complete standardized testing outfits with their equipment. Some wire chiefs, however, prefer to design their own outfits and in any event satisfaction and efficiency dictate and show that it is highly desirable that the underlying principles of operation of the testing equipment be thoroughly understood. The schematic circuit arrangement, for resistance and insulation measurement, with all switching and connecting keys omitted, is shown in the sketch. The voltmeter "A", the telephone office battery "B" and the line circuit to be tested (tip side "D" and ring side "C") are related to each other as shown. The internal resistance of the voltmeter may be assumed to be 100,000 ohms and the exchange battery, as stated in the inquiry may be 50 volts. It must be emphasized that the internal resistance of the voltmeter and the battery voltage must be known in order to develop any method of determining insulation resistance because the voltmeter deflections in that case are dependent upon these factors. As shown in the sketch the deflection of the voltmeter may be used to compute the insulation resistance (between tip and ring). If the insulation to ground of either conductor of the pair is to be determined by the voltmeter it will be ascertained by connecting the lead G from the voltmeter to the conductor to be tested, after disconnecting "G" from the battery and connecting voltmeter lead "E" to the live side of the battery "H", disconnecting the mate of this conductor from the testing equipment entirely and noting the voltmeter deflection through a circuit which includes the office ground (which cannot, of course, be disconnected). In the case of a ground fault on one conductor which is not of constant resistance another method of testing will probably have to be used but even in that case the fluctuating deflection of the voltmeter will show that the fault is not a hard and fast ground but is variable.

An illustration of the test for insulation between the two conductors of a pair may be helpful. Assume that the internal resistance of the voltmeter is 100,000 ohms, that the battery voltage is exactly 50, that the connections are as shown in the sketch and that the voltmeter is provided with a full scale calibrated for 80 volts. The scale to which the voltmeter is calibrated is not a factor in the test itself. It merely shows whether the instrument is suitable or unsuitable for best results. To illustrate this point it may be assumed that the voltmeter which it is proposed to use is calibrated for 500 volts. Then all the testing within the exchange battery voltage limits would have to be done low down on the voltmeter scale and the differences in the voltmeter deflections for various conditions would be very difficult to read. The formula on which the test for insulation depends using the assumed factors above is the formula for the Ohmmeter and is as follows:

$$X = \frac{D}{D_1}(100{,}000) - 100{,}000$$

X = unknown insulation resistance
D = battery voltage as shown by the voltmeter when connected direct
D_1 = deflection as shown by voltmeter when connected as shown in the sketch

With a deflection of 25, when connected as shown in the sketch, the insulation resistance between the two conductors of the pair under test is therefore:

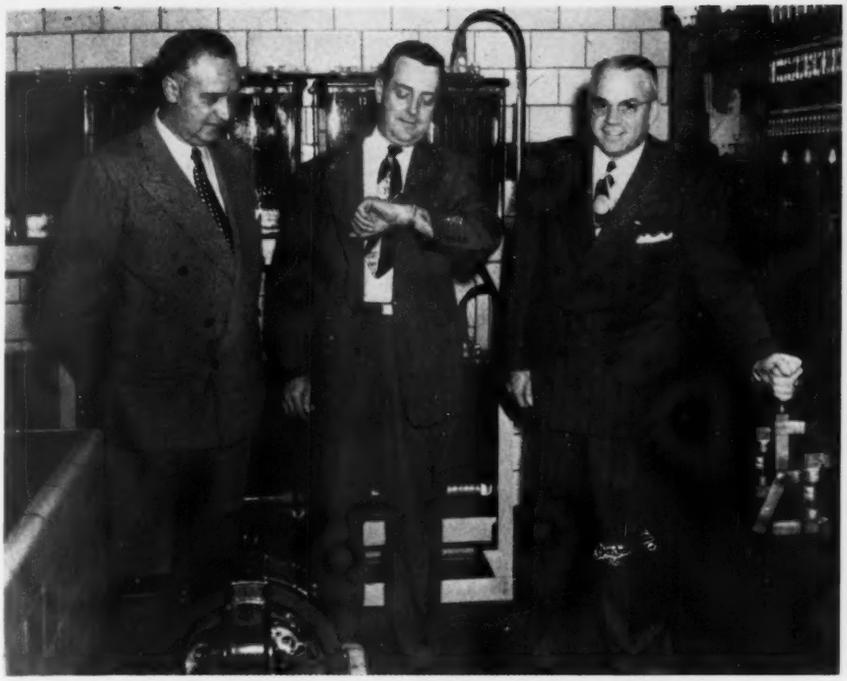
$$\frac{50}{25}(100{,}000) - 100{,}000 \text{ or } 100{,}000 \text{ ohms}$$

With a deflection of 10, when connected as shown, the insulation resistance between the two conductors of the pair under test is:

$$\frac{50}{10}(100{,}000) - 100{,}000 \text{ or } 400{,}000 \text{ ohms}$$

The circuit changes specified are, of course, accomplished by the operation of suitable telephone type switching keys embodied in the testing equipment and omitted from the schematic for clearness.

The computations incidental to the selection of the voltmeter shunt will be covered in a continued section in the next issue of TELEPHONE ENGINEER & MANAGEMENT.



Louis F. Shepherd, president and general manager, Pennsylvania Telephone Corp., ready to throw the switch for recent cutover of Somerset, Pa., exchange from manual to dial operation. In the center, C. H. Tennant, Somerset manager, times the operation. On the left is J. B. Foster, chief installer of step-by-step equipment for Federal Telephone and Radio Corporation, manufacturers of the equipment.

Somerset, Pa. Converted To Step-By-Step System

PENNSYLVANIA Telephone Corp. converted its 1100-line manual exchange at Somerset, Pa., to dial operation recently. The new dial system, initially comprising 1,440 lines and 2,600 terminals of MAX type step-by-step switching equipment, was produced by Federal Telephone & Radio Corp. (FTR), manufacturing associate of International Telephone and Telegraph Corp.

The Somerset installation, housed in an entirely new, modern-type, air-conditioned central office building, is one of several large cutovers made by Pennsylvania Telephone Corp. under its continuing program of construction and improvement. The installation includes a 2-position toll test panel and a single-position local test panel.

At a later date the Somerset exchange will cut into service inter-toll equipment for working with a 12-position toll board, as well as with FTR inter-toll equipment to be installed at Johnstown, Pa. The system subsequently will be provided with facilities for operation in conjunction with the national operator toll dialing plan.

Four additional toll circuits for Meyersdale, 3 for Boswell and 3 for Confluence, will be provided by the installation of Federal's 9-H-2 medium-haul carrier equipment.

Other cities and communities where Pennsylvania Telephone Corp. has installed Federal step-by-step dial switching equipment include: Erie, Pa., Johnstown, Pa., and Wesleyville, Pa.

Brookings, S. D., Group Plans Telephone Co-op

BROOKINGS, S. D., rural telephone subscribers recently appointed a committee to start operations that will eventually lead to the construction of an entirely new rural system.

Frank Dixon, of the Northwestern Bell Telephone Co., Harold Burr, past president of the North Dakota Independent Telephone Association and director of the small companies division of that association, and H. M. Hyle of the Rural Electrification Administration, Washington, D. C., were present at a recent meeting to explain the efficiency of operation of small systems.

Should the telephone co-operative be formed it is tentatively proposed to: build an exchange outside the city of Brookings; rebuild all lines giving area coverage to all parts served by the exchange; install semi-selective ringing.

Members of the membership committee are Ray Barnett, Brookings, chairman; Henry Bullis, Aurora; M. E. Erickson, Brookings; Ken Wheeler, Aurora; Erwin Tofte, Brookings; Clarence Ness, Bruce, and William Hagensick, Brookings.

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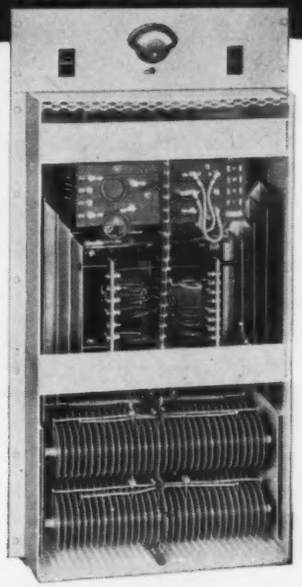

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1250A	3Ø	50.0 amp. 24V.
2500A	3Ø	100.0 amp. 24V.
*150D	1Ø	6 amp. 24V.
		3 amp. 50V.
*300D	1Ø	12 amp. 24V.
		6 amp. 50V.
75B	1Ø	1.5 amp. 50V.
150B	1Ø	3 amp. 50V.
300B	1Ø	6 amp. 50V.
600B	1Ø	12 amp. 50V.
1200B	1Ø	24 amp. 50V.
1250B	3Ø	25 amp. 50V.
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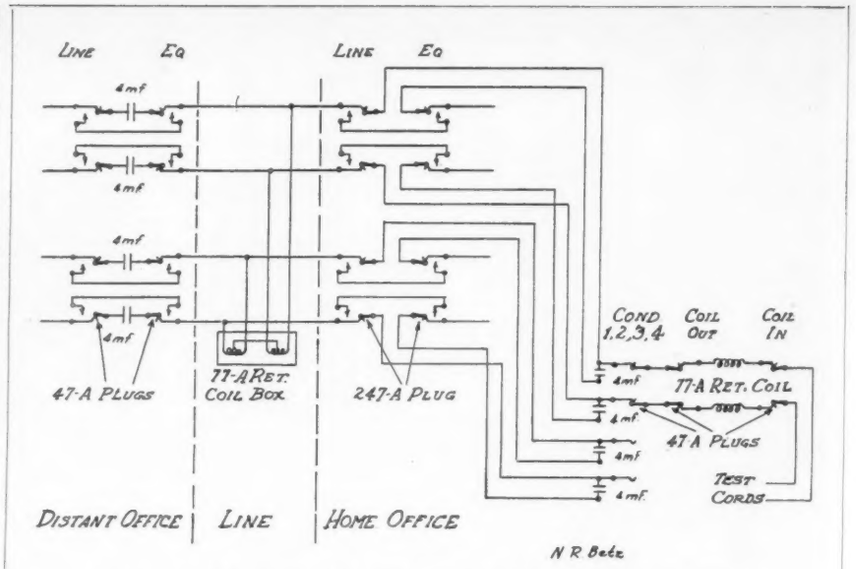

Method of locating high resistance joints by means of coils.

Testing Line Resistance Joints Without Interrupting Toll Line Service

By N. R. Betz

Central Office Foreman
New Brunswick Telephone Co.
Moncton, N. B., Canada

AS LONG AS we have sleet storms when wires are spliced under trying circumstances, and not properly cleaned, we may expect to continue to find some high resistance joints, which cause noisy toll lines and cross-talk.

Under the old method of using a short and ground on the line to take a varley, it meant removing from service one base circuit, one phantom circuit, and from one to three carrier channels. By using the method as shown in *Fig.* 1, there are no circuits taken from service.

In these busy days, toll circuits are at a premium, and if taken from service, cause much delay in service and some loss of revenue. Turning down from three to five circuits, one hundred miles long, for eight hours, would, in our case, represent from about $400 to $700 in circuit loss. It is true all this money would not be lost, but some would be, and the delay in service would, in many cases, be very serious.

Briefly, the method consists of opening the circuit to direct current at the distant office by the use of four M. F. condensers cut in by means of 247 Plugs in the line and eqpt. jacks, then placing the coils across the line instead of a short. At the home office, the testing is done through another coil. The readings for a four wire short are taken in the regular way. Example:

1+2=204	3+4=304	304	200	
1+3=204	204	200	100	
2+3=200	100 Wire 2	104 Wire 1	100 Wire 4	
2 | 608				
304				
204	Wire 1	Wire 2	Wire 3	Wire 4
100 Wire 3	104	100	100	100
	4 ohms	—	—	—

Showing wire 1 to have a high resistance joint of 4 ohms.

The only difficulty one might encounter is that the coil across the line might make the repeaters at the home office have a tendency to howl.

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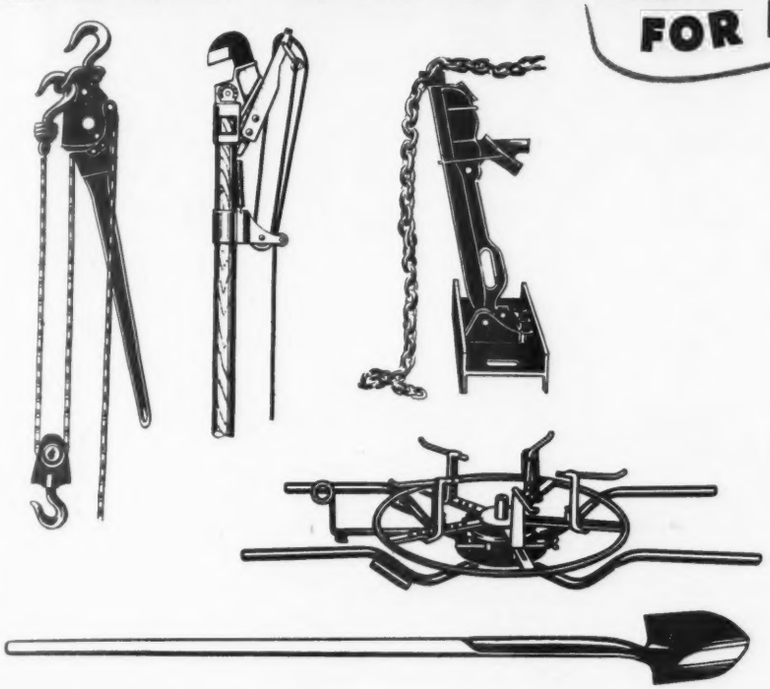

Why spend time shopping around for tools? From nearby Graybar you can fill all your requirements with just one order—and be sure you're getting dependable items. Graybar, pioneer supplier of tools and pole-line items to the independent telephone industry, has always selected only proven products of leading manufacturers who serve this industry.

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- peavies, cant hooks, carrying hooks
- pliers, screwdrivers, knives, wrenches, grips
- shovels, spoons, digging bars, tampers
- sleeve clamps and twisters, temporary guy clamps
- tool bags, belts, safety straps, tool pockets
- trimmers, lopping shears, saws
- wire reels
- hot-line tools: hinged universal tools, storm tools, insulated wire cutters, grounding sets
- safety equipment and first aid kits

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This, we have found, can easily be taken care of by turning down the gain slightly while the tests are in progress. Be sure to see that all plugs used in testing are clean. This is very important, *so* important, that it is better to polish them at the start of each day. Dirty plugs can throw a test out several ohms.

The coils used are 77A Retard Coils. The windings of the 77A Retard Coils usually differ from 2 to 8 tenths of an ohm. The low winding may be brought up by means of small coils of single jumper wire cut in series, so as to balance to one tenth of an ohm or less. Do not try to short cut by using smaller coils. These have been tried and found to reflect variations in resistance due to temperature changes.

The coils are mounted in a box with two cab tire cables, forty feet long, having large battery clips on the ends to clip the wires, which by the way, should be cleaned with emery cloth before fastening on the clips, and the coil box may be left on the truck or placed at the foot of the pole.—THE END.

Rebuilding

(*Continued from page* 35)

or both. This trouble should be corrected and the test ring repeated.

On pushbutton lines, the operation of the pushbutton on the set should be checked. Depressing the push button and turning the generator crank should bring the operator on the line without ringing the station bell. Cranking the generator without depressing the button should cause the station bell to ring.

The generator automatic switch should operate properly in the tests, connecting the generator to the line as soon as the handle is pulled and disconnecting positively on the handle being released. The generator should turn freely and quietly.

Conclusion

IN THE foregoing series of articles on rebuilding outside telephone plant, we have discussed various phases of plant reconstruction, including the preliminary steps which are so important to the successful implementation of the program. As stressed in the opening paragraphs of the series, these pre-

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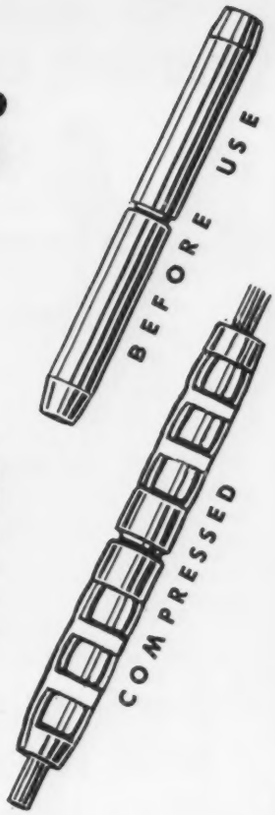

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liminary steps should be undertaken in the proper order, namely, clearing right of ways, soliciting non-subscribers, and regrouping present and potential subscribers. Next follow the preparation of record maps and then the inspection of the plant to determine the work to be performed and the materials needed in the rebuilding process. State and county authorities should be consulted to obtain needed permits and to secure the cooperation of the authorities in tying in the telephone rebuilding program with road improvement and right of way clearance projects that may be started in the immediate future. When all is in readiness, the rebuilding work can be started with the assurance that contingencies have been provided for and that the program will be completed with economy of time and money.—THE END

Kentucky Co-op Starts Rural Telephone Survey

APPROVAL was given recently to start an engineering survey for the South Central Rural Telephone Co-operative which will tentatively locate lines and exchanges for the proposed telephone system in Barren, Hart and Metcalfe counties, Kentucky, as well as in adjacent sections.

Giving the nod to the engineering study, which marks the first step toward actual establishment of the system, was W. R. McCray, engineer for the telephone section of REA. A native of Winchester, Mr. McCray has served nine years with the Kentucky Public Service Commission, going with the REA in Washington in March.

Approval of the survey followed meetings with representatives of the engineering firm, Johnson, Depp & Quisenberry, Owensboro. The meeting was also attended by Leroy Neumeister, Glasgow, Kentucky Public Service Commission representative, officials of the Southern Continental Telephone Co. and the co-op trustees.

At the present, there are approximately 900 applicants for telephone service in Barren, Hart and Metcalfe counties and in fringe areas of Allen and Monroe counties. Included in planning for the system are subscribers of the Gamaliel exchange, in Monroe county.

Mr. McCray said REA officials are interested in getting the local telephone co-op underway. "REA has done a job in getting electricity to the rural people," he said, "and we want now to get adequate communication to the rural areas."

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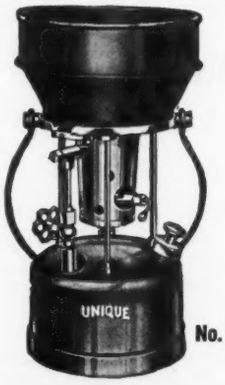

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News Briefs

(Continued from page 43)

scribers over 68 miles of line. In addition to rehabilitating existing plant, the company plans to put in eight unattended dial offices, and build 289 miles of new line, to serve an ultimate 1711 customers.

Also providing for dial service were the loans to the four remaining approved applicants: the Woodlawn, (Ill.) Telephone Co., to get $46,000; the Mutual Telephone Co., Sioux Center, Ia., granted $150,000; the Belmont Telephone Co., Platteville, Wisc., approved for $133,000, and the Wilkes Telephone & Electric Co., Washington, Ga., to receive $184,000.

The Illinois concern will build 43 miles of lines, rebuild 8 miles, and modernize its plant. It now serves 341 subscribers, and will boost its total to 327 under the loan estimates. The allocation was the first in Illinois.

In Sioux Center, the company, which has 1163 subscribers now, is expected to raise the total to 1232. It will rebuild 18 miles of line, and rehabilitate 172 miles.

The Wisconsin company expects to add 70 subscribers, to a total of 440. It will rebuild 92 miles of existing lines and construct three miles, as well as providing improved station equipment. The Belmont company is a successor to the Belmont & Pleasant View Telephone Co., which is being dissolved.

The Georgia company, which like the others presently has magneto service, is expected to be able to serve 643 customers after the construction project, compared to its present 149. It will build 170 miles of new line, and rebuild 10 miles.

E. P. Burney Heads Georgia Association

MORE THAN 150 members of the Georgia Telephone Association gathered at Hotel Dempsey, Macon, Nov. 9-10 for the sessions of the organization's two-day convention.

Directors re-elected by the convention are: W. C. Martin, Fitzgerald; J. L. Matthews, Statesboro; J. A. Peters, Manchester; A. N. New, Thomaston; A. A. Fincher, Jr., Canton; J. E. Kirk, Dalton; H. W. Vaughan, Chickamaugua, and Lane-Hubbard, Atlanta.

Officers elected by the directors are: President, E. P. Burney, Lafay-

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COMPARE THE SPAN LENGTHS!
SIZE NO. 12 B.W.G. HEAVY LOADING DISTRICT
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Substantial economies both in construction and maintenance are the result. Initial building costs are lower because of marked savings in material and labor. Upkeep expense is reduced because there are fewer pole structures to maintain. Service interruptions are minimized because Crapo High-Tensile Line Wire offers increased resistance to ice and wind, provides a greater margin of safety.

Crapo High-Tensile Telephone Line Wire is available for prompt shipment from jobbers' warehouse stocks or from our mill.

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ette; first vice president, J. H. Wright, Monroe; second vice-president, E. B. Emrey, Decatur, and secretary-treasurer, H. M. Stewart, Cornelia.

Morning activities got under way after a call to order by the president, W. C. Martin of Fitzgerald. H. M. Stewart of Cornelia, secretary-treasurer of the organization, followed with a report.

Highlight of the morning get-together was a talk by George C. Richert of Washington, D. C., engineer for the United States Independent Telephone Association. Mr. Richert presented a summary of recent developments in Washington which affect telephone companies.

R. C. Reno, editor of *Telephony*, addressed the delegation on Nov. 9, and discussed "Preserving Our Freedom—A Full Time Job." He cited the position of the individual in what he termed a "combat with socialistic trends in our nation."

Other speakers appearing at the Nov. 9 session were: N. Knowles Davis, chief engineer of the Georgia Public Service Commission; Earle Blomeyer, president of the Kentucky Independent Telephone Association.

The Nov. 10 sessions began with an address by George L. Kinsman of Atlanta, connecting company representative of the Southern Bell Telephone & Telegraph Co. Other speakers at the final session were H. O. Edson, assistant treasurer of the Kellogg Switchboard & Supply Co, and Dan B. Corman, telephone consultant to the administrator of the Rural Electrification Association.

NPA May Ask For Material Substitution

MANUFACTURERS soon may be told to substitute abundant materials in certain products for those that are scarce, H. B. McCoy, assistant administrator of the National Production Authority (NPA), stated in Chicago, recently.

Mr. McCoy also told the annual conference of the Production & Marketing Administration that the NPA plans to issue "specification controls" cutting down the amount of hard-to-get materials used in some processes, such as alloying. He noted that the orders probably will be of a "permissive use" nature. In other words, the NPA will spell out the uses to which short supplies could be applied.

Mr. McCoy told the meeting these orders will be the basis of the NPA materials conservation program. He emphasized these curbs do not mean "that the production of some types

2 A. M. at the Mitchell's

A light in the window up on Field Street. A quick call on the telephone. Valuable minutes . . . when minutes count most . . . gained because the doctor's telephone is always on the job.

In back of the ready "Number Please" of the operator—or the invitation of the dial tone—there is a story of continuing research, of skillful manufacture and dependable operation written by America's telephone industry.

Western Electric has always made the kind of equipment which helps make this reliable service possible.

Western Electric

TELEPHONE APPARATUS AND CABLE

of non-defense goods will be eliminated entirely, at least not at the current stage of mobilization. Wherever substitution of materials in adequate or fair supply can be made, to this extent will the production of many lines of finished goods be maintained for non-defense purposes."

Conservation of materials in short supply will not be limited to non-military applications, the NPA official stated. "The Department of Defense is constantly reviewing specifications of military items and carrying on research for the purpose of reducing to a minimum the quantities of strategic materials consumed," he said.

Mr. McCoy said the outlook for increased supply of steel and aluminum next year is "quite favorable." He said copper supplies can not be boosted for two or three years and noted that nickel, cobalt and columbium supplies can not be increased to any appreciable degree.

Turning to previous NPA orders restricting over-all civilian consumption of scarce metals, Mr. McCoy declared it was obvious that any base period would cause inequities. "We are making adjustments for hardship cases of this kind and making every reasonable effort within the limits of supply of materials, to prevent any consumer of materials from suffering losses in operation," he asserted.

German P. O. Engineers Visit Automatic Electric

DURING THE week of December 11, Automatic Electric Co., Chicago, was host to five officials of the German Post Office who are spending three months in this country studying United States telecommunication organization and techniques under the sponsorship of the State Department. Automatic Electric was selected by U. S. Government authorities to cooperate in supplying information as to modern telephone systems and practices to visiting overseas teams under the E. C. A's technical assistance program.

The five members of the group are: Friedrich Sauerlandt, chief of the mechanical engineering section, Ministry of Posts and Telecommunications, Frankfurt; Karl Wilhelm Riehl, acting chief, Directorate for Posts and Telecommunications of Northern Baden, Karlsruhe; Ernst Neidl, chief of telephone and telegraph exchanges and repeater stations for the Augsburg area, Augsburg; Kurt Westphal, chief of the Telegraph Service and

(Please turn to page 62)

Shown here is the group of visiting officials of the German Post Office being treated to a demonstration of Automatic Toll Ticketing Equipment at the Park Ridge, Ill., automatic exchange. Left to right: J. E. Ostline, project engineer, Automatic Electric Company; Kurt Westphal, chief of the Telegraph Service and chief of the Allied Telegraph Center in Berlin; Karl Wilhelm Riehl, acting chief, Directorate of Posts and Telecommunications of Northern Baden; Karlsruhe; Ernest Neidl, chief of telephone and telegraph exchanges and repeater stations for the Augsburg area, Augsburg; Friedrich Sauerlandt, chief of the mechanical engineering section, Ministry of Posts and Telecommunications, Frankfurt; Ewald Klobach, accountant and auditor, Ministry of Posts and Telecommunications, Frankfurt; and S. H. Biery, manager of the Middle States Telephone Company for Park Ridge and Des Plaines.

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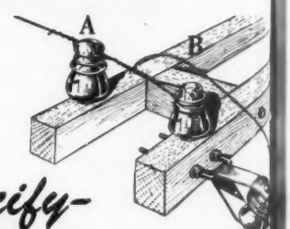

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This new insulator was design
to conform with specifications
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The triple upper-skirt rings pr
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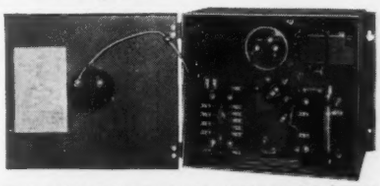
For more than a decade, leading independent telephone companies have found that Raytheon Rectifilters are the most economical and efficient way to supply steady DC power to PBX boards directly from an AC source.

With no moving parts, the Raytheon Rectifilter requires neither adjustment nor maintenance. It will outlast many sets of batteries, release wires carrying charging current from central office to subscribers' PBX boards for revenue producing service, and minimize power cost because of high efficiency in converting from AC to DC.

Dry disc rectifying units and other components are designed for long-life, trouble-free service. The Raytheon Rectifilter will end your telephone power problems. Just plug it in, close the door —and forget it!



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The very simplicity of the Reliable 955A is assurance of long, trouble-free service. Fuses are mounted on a one-piece, low absorption porcelain, well spaced for convenient connecting. Reliable Self-cleaning Sawtooth Discharge Blocks are standard, dissipating static without time lag or danger of grounding the line. The 955A uses No. 77L, seven ampere ceramic fuses.

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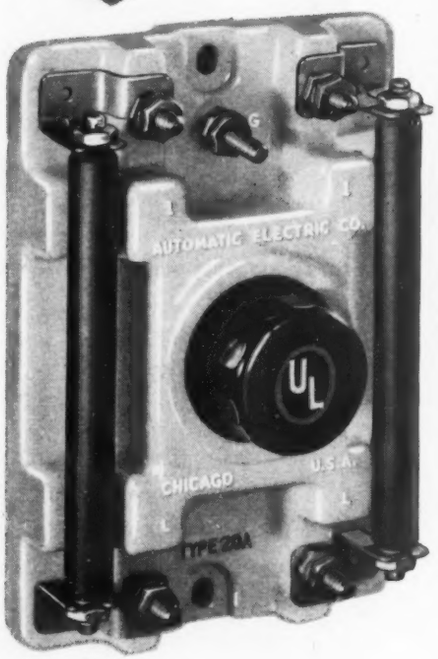

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Guard subscriber stations with this sturdy indoor protector. Heavy, one-piece porcelain base has barrier walls between discharge blocks and fuses and terminals, providing a wide margin of dielectric strength. Discharge surfaces are very accurately spaced—give proper protection without excessive maintenance. For real protection, order Automatic's Type 20A Protector, Cat. No. SB-88. (Also available with cover, for outdoor installation—Cat. No. SB-91).

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chief of the Allied Telegraph Center in Berlin; Ewald Klobach, accountant and auditor, Ministry of Posts and Telecommunications, Frankfurt.

These officials spent several days in discussions with technical and production staff members of the Automatic Electric organization. Their program also included visits to the automatic exchange of the Illinois Telephone Company at Bloomington, Ill., and those of the DeKalb-Ogle Telephone Company, Sycamore, Ill.

In addition, through the cooperation of S. H. Biery, local manager of the Middle States Telephone Company, an opportunity was afforded them of visiting that company's exchanges at Park Ridge and Des Plaines, Illinois, which were converted in 1950 to Strowger Automatic operation, with facilities for automatic ticketing of toll calls to exchanges of the Illinois Bell Telephone Company in the Chicago metropolitan area. The visitors showed warm interest in examining the automatic toll ticketing equipment, the functioning of the Director, and the facilities provided for interconnection between the Strowger Automatic equipment and the Crossbar and Panel equipment of the connecting Bell exchanges.

The group has covered a considerable field of American telephone activity, having spent some three weeks with the Federal Communications Commission in Washington and having visited other large and important communications organizations.

New Company Plans Service For Melrose, Fla.

GROUND SURVEYS, for a proposed telephone service in the Melrose, Fla., area, have been completed, according to an announcement by D. P. Lyon, chairman of the organizing committee of the Santa Fe Telephone Co.

The company, first projected a year ago by a group of Melrose citizens to provide modern telephone service at reasonable rates to a broad rural area, would center in Melrose.

J. W. Bauler, southern regional representative of the Applications and Loans division, Rural Electrification Administration, was in charge of the survey. K. Woodrow Benckert was in charge of the engineering delegation which included Joseph M. Flanigan and Stanley M. Sorensen, all of the REA Engineering Division from Washington.

The Santa Fe Telephone Co. would operate in parts of Alachua, Bradford, Clay, and Putnam Counties not

adequately served at present, including Brooker and vicinity to the northwest and extending to Cross Creek, Interlachen and Florahome to the south and east. Mutually acceptable boundaries will be negotiated with companies now serving adjacent areas.

Over 700 applications for service have been received by the Santa Fe Co. since the canvas was started in May under instruction of the REA.

The organizing committee of the Santa Fe Company was composed of Prof. Kenneth Black, Cmdr. H. E. Cooper, J. Emory Cross, Chairman Lyon, Archie Yeomans, and Secretary Morris Storter.

The committee filed a loan application with the REA on April 8, and on July 21 delivered to Washington a tabulation and mapping of 510 prospective subscribers over a limited area bounded by Waldo and Hampton to the northeast.

Responding to the request of the REA, the area coverage of the Santa Fe Company was extended to include Brooker and Interlachen and surrounding communities.

Stutsman Rural Group Resumes Meetings

Held up by blizzards, floods and late planting and harvesting, the county-wide movement for a new rural telephone service in Stutsman county, N. D., launched at a mass meeting March 31, will soon culminate in filing of a loan application with the Rural Electrification Administration, Washington, D. C.

Chester Graham of the Farmers Union State Headquarters office, Jamestown, N. D., stated Ernest J. Hartz, from REA's Telephone Division met with the Stutsman County Organizing committee and volunteer workers in Jamestown recently. He commended the committee for the work done in Stutsman county and urged it to send in its loan application.

Arkansas Telephone Firm Gets Charter

A charter for the Northwest Arkansas Co-op Telephone Co., Siloam Springs, Ark., has been accepted by the Arkansas secretary of state, and the company will serve all isolated areas in northwest Arkansas not now being serviced by other companies.

Co-op lines, to be built according to REA specifications, will be serviced by the telephone companies. The total project is estimated at $500,000, according to Hugh Brooks, manager.

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TELEPHONE ENGINEER & MANAGEMENT
January through December, 1950

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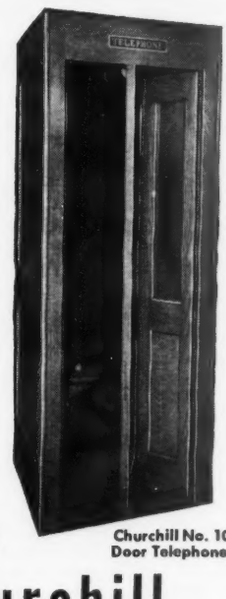

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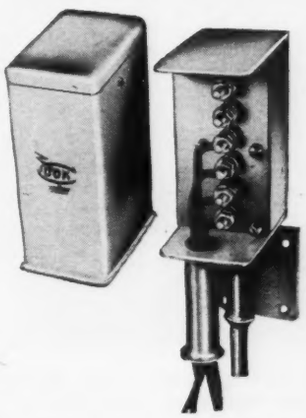

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Left to right—Margaret McNaughton, JoAnn Haaf, Wanda Young, Joan Foster, and Ina Webb, operating the Cordless B and call indicator positions of equipment installed in the central office at Portsmouth in connection with the cut-over to dial operation of 1400 business telephone lines.

"Operation Change Over" At Portsmouth, Ohio

CONVERSION OF 1400 business telephone lines to automatic operation, and the changing of 10,000 telephone numbers throughout the Portsmouth main exchange, recently was completed by the Ohio Consolidated Telephone Co., with a resultant marked improvement in telephone service for both manual and automatic subscribers.

Described by the local press as "Operation Change-Over", the cut-over was successfully carried out with very few "bugs" in comparison with the magnitude of the undertaking, and most of the troubles which developed were quickly ironed out.

The change was preceded by a care-

Left to right—E. D. Dougherty and K. B. Ledman, past presidents of the Chamber of Commerce, L. F. Roberts, vice president of Ohio Consolidated Telephone Co., stand by as James Skaates, secretary of the Chamber of Commerce, receives the first call over the new dial system from Mayor Huestis.

Virgil Pierce, switchman, John J. Moran, engineer of Ohio Consolidated Telephone Co., and Mr. Pracht, employee of the Automatic Electric Sales Corp.

fully planned advertising and publicity program which was carried on for about 90 days in the local newspapers and with subscribers bill stuffers, and the ceremonies in connection with the cutover were given wide publicity through the medium of a 30-minute broadcast over WPAY, Portsmouth's radio station.

The cutover started at 9 p. m. Saturday, November 18, and the major part of the work was completed about midnight. The first official call over the new equipment was placed by Mayor L. D. Heustis to James V. Skaates, secretary of the Chamber of Commerce. Persons interviewed during the broadcast ceremonies included Mayor Heustis, City Manager E. T. Beall, R. N. Cole, executive vice president and general manager of the Ohio Consolidated Telephone Company, L. F. Roberts, vice president in charge of public relations, and Virgil Pierce, switchman and president of the local telephone workers union. The power switch putting the automatic equipment into operation was thrown by City Manager Beall, while Leonard Snodgrass, assistant secretary and auditor, A. C. Purpura, general superintendent, and J. R. Yeager, Portsmouth district manager acted as official timers and unofficial observers. The cutover operations were in charge of Carl Wright, Earl Neir, and Carl Pracht, representatives of Automatic Electric Co., and John J. Moran, engineer, and J. R. Yeager, Portsmouth manager, of Ohio Consolidated Telephone Co.

During the first 24 hours after the cutover (Sunday, November 19), a total of 43,173 calls were handled on the Portsmouth exchange. On Monday, November 20, the first business day after the cutover, a total of 79,507 manual calls were handled. In addition, there was an estimated

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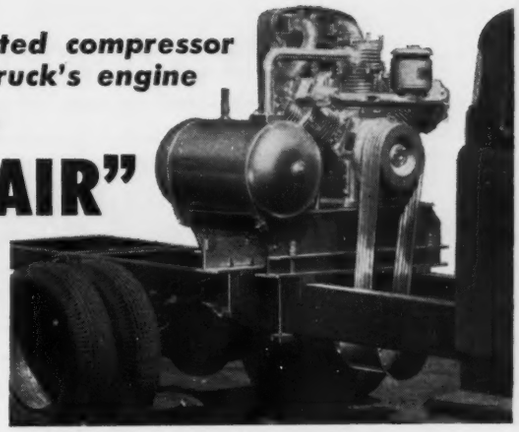

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The Portsmouth main exchange now has approximately 11,500 stations, and in addition to the 1400 lines of automatic equipment, there are 3,400 lines of manual equipment. (The entire Portsmouth area, which includes the New Boston, Sciotoville, and Lucasville exchanges, has a total of 15,000 stations.) Increasing demands for service exceeded the capacity of the existing manual switchboard equipment, and due to lack of space in the present office, the 1400 line automatic growth unit was installed on the eighth floor of the Masonic Building nearby, located approximately 800 feet from the old office building.

REA Names Surginer New Finance Chief

LESLIE SURGINER of Arlington, Va., has been appointed chief of the Finance Division of the Rural Electrification Administration to succeed Joseph F. Marion who retired Nov. 1 from government service, the U. S. Department of Agriculture has announced.

Mr. Marion, 72, rounded out 15 years of service in the position he held at the time of his retirement, having joined REA's staff in November, 1935, when the agency was less than six months old.

He is a native of Fitchburg, Mass., and was graduated from the University of Pennsylvania and the Minnesota State Teachers College. He came to REA from the position of special deputy insurance commissioner for the State of Pennsylvania.

Mr. Surginer, the new chief of the REA Finance Division, was born in Gomez, Texas, in 1904. He was graduated from the University of Texas in 1928, and from the South Texas School of Commerce in 1940. Mr. Surginer is also a member of the American Institute of Accountants.

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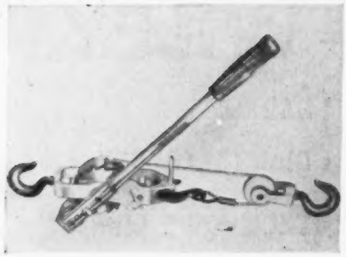

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ADVERTISING, Directories—General Telephone Directory Co., 604 Pine Ave., Long Beach, Cal., and 185 N. Wabash, Chicago, Ill.—[ADV. 2]

ANCHORS, Plastic Expanding, Universal. All Purpose—Mount in any Material, Holub Industries, Inc., 424 DeKalb Ave., Sycamore, Ill.—[ADV. 3]

ANCHORS & WIRE CONNECTORS—Matthews Scrulix Anchors, Matthews Telephone Wire Connectors. Write for bulletins. W. N. Matthews Corp., St. Louis 16, Mo.—[ADV. 4]

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BATTERIES, Dry Cell—The Ray-O-Vac Company, 2317 Winnebago St., Madison, Wisc.—[ADV. 6]

BATTERY—WATER UNITS Demineralizers for Tap Water—A. E. Tomkin & Co., 1828 Columbia Rd., N.W., Washington 9, D. C.—[ADV. 7]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.—[ADV. 8]

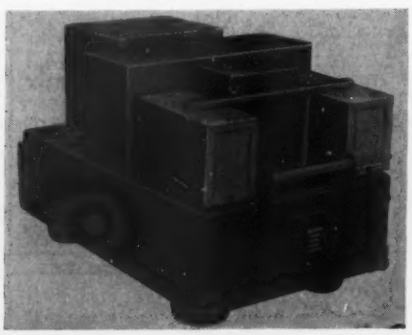
BLOCKS, AERIAL CABLE—"Tug-O-Wheel" aerial cable blocks for safe and speedy installation of all types of aerial cable. Tug-O-Wheel Products Co., Ballston Spa, N. Y.—[ADV. 9]

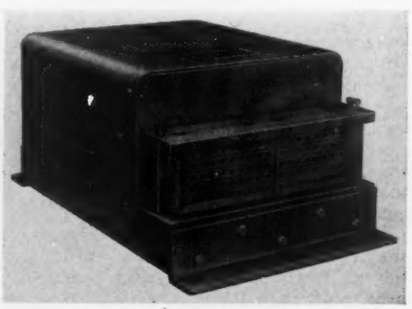
BOOTHS—Acoustic Telephone—Sherron Metallic Corp., 1201 Flushing Ave., Brooklyn 6, N. Y.—[ADV. 10]

BOOTHS—Churchill Cabinet Co., 2119 Churchill St., Chicago 47, Ill.—[ADV. 11]

CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard.—The Ansonia Electrical Co., Ansonia, Conn.—[ADV. 12]

CABLE SPINNING—The Cable Spinning Equipment Company, 432 Crane St., Topeka, Kans.—[ADV. 13]





VIBRATOR CONVERTERS:—*Two new models have been added to the line of Cornell-Dubilier vibrator converters for railroad application. Both incorporate the patented self-servicing enroute feature—which is made possible by the automatic switch-over to a stand-by vibrator when the service vibrator reaches the end of its useful life. Uninterrupted service is thus insured on the longest trip, with no attention required from train crew. A warning light signal indicates need for vibrator replacement on routine maintenance check-up.*

Model 3248 is designed for 32 volts D.C. input and delivers 115 volts 60 cycles A.C., with a maximum power output of 375 volt amperes. This unit was designed for the operation of entertainment broadcast and FM radio in passenger cars, as well as for the operation of entertainment wire and tape reproducers, dictating machines, sound amplifiers, and so forth. It is also suited for operating fluorescent lights. This unit is filtered for the broadcast band and is shock mounted for passenger car service.

Model 3212A is designed specifically for operating radio communications equipment in cabooses where 12 volts is the available source of power. It delivers 115 volts 60 cycles A.C., with a power output of 175 volt amperes maximum.—Check New Product 294.

CARRIER EQUIPMENT—Adler Telephone & Telegraph Carrier Equipment has been standard for twenty years in the Independent Field. Mfd. only by Southern Electric & Transmission Co., 3127 Holmes St., Dallas, Texas.—[ADV. 14]

CONNECTORS, CABLE—Cannon Electric Development Co., 3209 Humboldt St., Los Angeles 31, Calif.—[ADV. 15]

CORDS, Instrument and Operators—Commermercial Cord & Supply Co., 26 Main St., Clifton Springs, N. Y.—[ADV. 16]

CORDS, Switchboard & Telephone—Runsel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.—[ADV. 17]

CROSS ARMS—American Cross-Arm, Inc., 141 W. Jackson Boulevard, Chicago, Ill.—[ADV. 18]

DERRICKS—Set more poles with aluminum derricks. Aluminum Co. of America, 1407C Gulf Bldg., Pittsburgh 19, Pa.—[ADV. 19]

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INSULATORS, Porcelain—Porcelain Products, Inc., Box 300, Findlay, Ohio.—[ADV. 26]

JACKS, for lifting Cable Reels, Pulling Poles and Maintenance Work. Duff-Norton Mfg. Co., 1710 Preble Ave., Pittsburgh 12, Pa.—[ADV. 27]

LIGHTWEIGHT PULLERS—Coffing Hoist Company, 800 Walters St., Danville 5, Ill.—[ADV. 28]

PIPE PUSHERS—Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.—[ADV. 29]

PIPE PUSHERS—Greenlee Tool Co., 2136 12 St., Rockford, Ill.—[ADV. 30]

PINS & BRACKETS—Mfrs of all sizes of Locust Pins and Oak Brackets , The Locust Pin Co., Inc., Front Royal, Va.—[ADV. 31]

POLE HOLE DIGGERS—For derrick mounted trucks Tel-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.—[ADV. 32]

POLES—Cedar poles and Fir cross arms. R. G. Haley & Co., Inc., Spitzer Bldg., Toledo 4, Ohio.—[ADV. 33]

POLES, Southern Yellow Pine—Colfax Lumber & Creosoting Co., Inc., P.O. Box 28, Pineville, La.—[ADV. 34]

POLES, Creosoted Southern Yellow Pine and Douglas Fir. The Long-Bell Lumber Company, Wood Preserving Div., R. A. Long Bldg., Kansas City, Mo.—[ADV. 35]

POLES, Southern Yellow Pine—Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.—[ADV. 36]

POLES, Southern Yellow Pine—Texas Creosoting Co., Orange, Texas.—[ADV. 37]

POLES—Texas Best pressure-creosoted poles. Lone Star Creosoting Co., P. O. Box 9, Longview, Texas.—[ADV. 38]

POLES—Western Red Cedar, Western Larch, Lodgepole Pine. B. J. Carney & Co., Minneapolis 3, Minn. and Spokane 8, Wash.—[ADV. 39]

POLES & CROSS ARMS—Creosoted poles and crossarms. Conroe Creosoting Co., Conroe, Texas.—[ADV. 40]

PROTECTIVE EQUIPMENT—Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—[ADV. 41]

GAS-TITE CABLE TERMINALS—Sub station protectors, main dist. frames; central office protectors; interior junction boxes; lightning arresters.—Cook Electric Co., 2700 Southport Ave., Chicago 14, Ill.—[ADV. 42]

PRINTING—Telephone forms. Cullom & Ghertner Co., 600 21st Ave., Nashville 4, Tenn.—[ADV. 43]

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SWITCHBOARDS, TELEPHONES, ETC.—Automatic Electric Co., 1033 W. Van Buren St., Chicago, Ill.—[ADV. 48]

SWITCHBOARDS, TELEPHONES, Etc.—The North Electric Manufacturing Company, Galion, Ohio.—[ADV. 49]

TRUCK BODIES—Highway Trailer Co., Edgerton, Wisc.—[ADV. 50]

TRUCK BODIES AND EQUIPMENT—McCabe Powers Auto Body Co., 5900 N. Broadway, St. Louis 15, Mo.—[ADV. 51]

WIRE DROP & INSIDE—Jackets of neoprene, rubber or plastic. Lowell Insulated Wire Co., Lowell, Mass.—[ADV. 52]

WIRE, Insulated—DATED DROP WIRE—Neoprene or Weatherproof—Alphaduct Wire & Cable Co., Milltown, N. J.—[ADV. 53]

WIRE, Insulated Drop and Bronze or Copperweld—Acorn Insulated Wire Co., Inc., 34 Freeman St., Pawtucket, R. I.—[ADV. 54]

WIRE, Insulated Drop, Genuine Ironite—Paragon Electric Co., Two Rivers, Wis.—[ADV. 55]

WIRE, Insulated Drop, HT Bronze, Paraprene or Braid Insulation—Paragon Electric Co., Two Rivers, Wisc.—[ADV. 56]

WIRE, TELEPHONE, for all inside and outside uses—Whitney Blake Company, New Haven, Conn.—[ADV. 57]

WRENCHES:—A new design in wrenches in all sizes of combination and open-end is now being marketed by Boney Forge & Tool Works, makers of mechanics' hand tools. The new line is streamlined, slim, light in weight and exceptionally well balanced. The most careful engineering has gone into their design to make the tools easier to handle and easier on the hands.

The latest line of Bonney Wrenches is made in long and short series with the box wrench ends in either single or double hex. Handles are well-rounded and smooth. There are no sharp edges or rough spots to make hands sore. An important feature of the new design is the development of conveniently narrow heads without sacrifice of the tool's strength which permit the user to get into tight places. The wrench openings are accurately gauged to assure a firm hold on the nut.—Check New Product 295.

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Please forward complete information on the following products and services described in the January, 1951 issue of TELEPHONE ENGINEER AND MANAGEMENT. (Check information desired.)

NEW PRODUCTS

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SERVICES AND SUPPLIES

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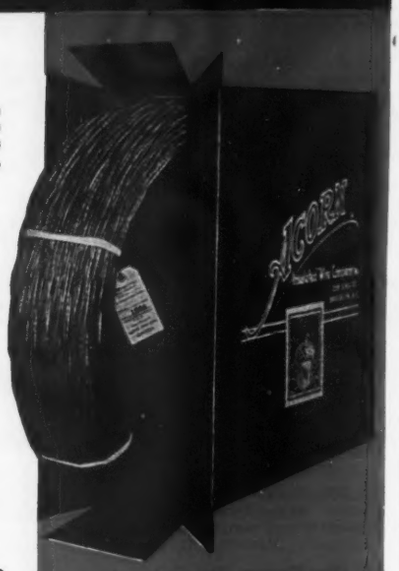

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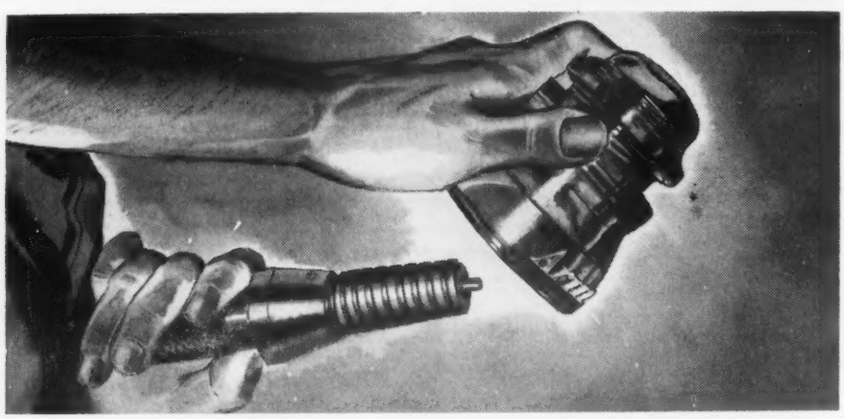

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for communications . . . for power

Kellogg Announces Change In Sales Division

K. C. TOMPERS has been named district manager of the Kellogg Switchboard & Supply Co.'s Minnesota-North and South Dakota territory according to F. M. Parsons, sales manager of Kellogg.

Previous to this appointment Mr. Tompers served Kellogg as an installer, then transferred to the sales division to become the field representative for the State of Washington.

Mr. Tompers will be located in St. Paul, Minn., at the Pioneer Building, Room 912.

Hull Named V. P. Raytheon Mfg. Co.

C. F. ADAMS, JR., president of Raytheon Manufacturing Co., Waltham, Mass., has announced the election of Captain David R. Hull, USN (Ret.), as a vice president of Raytheon.

Captain Hull, currently the assistant manager of the Equipment Divisions of Raytheon, will become manager on January 1, Mr. Adams stated. He succeeds Wallace L. Gifford, who is continuing with the company as a director and vice president in an advisory capacity.

Utica Forge & Tool Advances T. R. Hughes

APPOINTMENT of *Thomas R. Hughes* as vice president and sales manager has just been announced by *Utica (N. Y.) Drop Forge & Tool Corporation*. Mr. Hughes, a native of Philadelphia, joined the Utica Company in 1940 as a production control man and progressed through the manufacturing side of the business to superintendent of the shop. From here he was moved into sales work. During the past year, as sales manager, Mr. Hughes has traveled over 50,000 miles from coast to coast, visiting and working with Utica representatives, jobbers and other customers.

Henry C. Roemer Returns To Federal

HENRY C. ROEMER, vice president and comptroller and member of the board of directors of International Telephone & Telegraph Corp., has also been elected executive vice president of Federal Telephone & Radio Corp., Clifton, New Jersey. He served as senior vice president of Federal during the war years.

Mr. Roemer has been connected with the IT&T since 1927, serving in various capacities.

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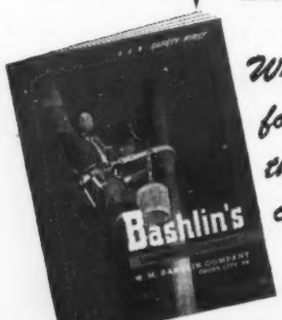

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The Back of The Book

By JOHN G. REYNOLDS

Cooperation:—A story of community determination and cooperative effort has been unfolded in and around Northome, Minn., in recent improvements made in telephone lines and service. Four years ago, on April 1, Chas. H. Trierweiler and wife, Lydia M., took over the Northome Exchange, which consisted of 31 telephones within the village limits of Northome, and ten switching lines, of 115 stations.

There were six metallic lines within the village, all other lines were grounded. Outside the village the switching lines were in bad condition.

Now the Northome Telephone Exchange consists of 105 telephones within the village limits; there are 60 common battery telephones, and all lines are metallic. There are seven metallic switching lines, five grounded switching lines, with 130 stations; ten of these lines have been completely rebuilt, by the neighborly method of "bees."

The men worked at constructing the new lines, the women furnished "coffee with the fixings at ten in the morning and again at three in the afternoon, at noon a dinner fit for a king was set before all.

They raised funds by holding socials, and levying a shareholders fee. It took about two years to complete the lines.

The lines have been organized into cooperatives, and township groups who do their own maintaining, and do their own collecting. "Charlie," as Mr. Trierweiler is known, assisted the groups by loaning his equipment and tools and supervising the construction of the lines. He and his wife attended the socials, also the organization meetings, giving suggestions as to the best methods of telephone business and practices.

Northome citizens now boast they have as good a telephone system as there is to be found any place, because the people were willing to work together to make it so.

• • •

"Times Have Changed" . . . If you are ever in Hastings, Neb., take time out to look up **Miss Celia Cleland,** who lives at 417½ North Saunders. Fifty-eight years ago Miss Cleland was a telephone operator in Hastings, and now at 74 she is most interested in the new Lincoln T. & T. offices in Hastings and the modern equipment that has replaced the "Central" of her day. She recalls in detail many of her own experiences as an operator in the 1890's. Back in those days there were fewer than 150 telephones in the entire city, according to Miss Cleland. The operator, or central had three panels before her with 50 connections on each panel.

By picking up his telephone a caller was connected directly with the operator. He would give his number and the number he wished to call. For example, if his number was 45 and he wished to call number 50 the conversation would go something like this: "Number 45 to number 50, please." Central would then connect the two parties.

Salaries have changed somewhat since 1892. "I worked for $8 a week. Out of which I managed to support myself and save enough to attend the Chicago Fair in 1893," she said.

• • •

"Number Please" . . . There can be no question that Miss Clara Olsen, of all residents of Luvern, Minn., is the most accomplished person in pronouncing phrases of politeness. Of course, she has had lots of practice during the last 30 years. Miss Olsen, by a conservative estimate, has said **"Number, please?"** and **"Thank you,"** not less than 500 times a day in the line of duty. In 30 years, at five days a week, that would mean that Miss Olsen has repeated the phrase almost 4,000,000 times.

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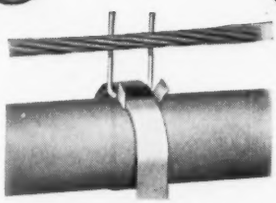
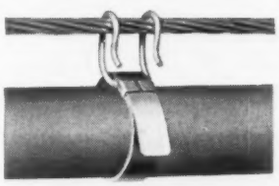
NICOPRESS Tool for Compressing Sleeves

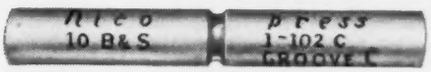


National Adjust-A-Strap, partially installed. Notice split buckle to facilitate wrapping zinc strap around cable



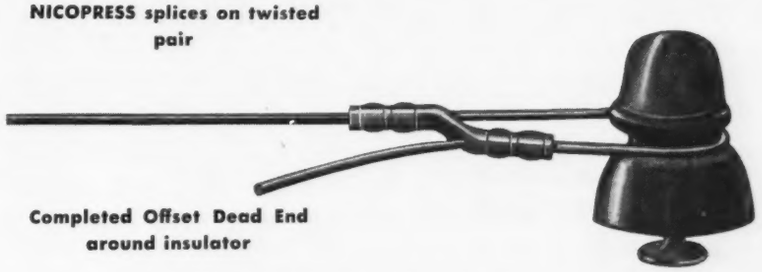
National Zinc-Wrap partially installed

Ask Your Jobber



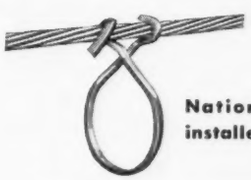
NICOPRESS line wire Splicing Sleeve

NICOPRESS splices on twisted pair



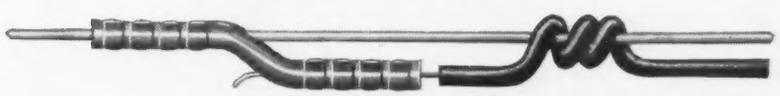
Completed Offset Dead End around insulator

NICOPRESS Reducing Sleeve splice on wires of different sizes (before compressing)



National cable ring installed on messenger

NICOPRESS Repair Sleeve used to replace defective old style joints



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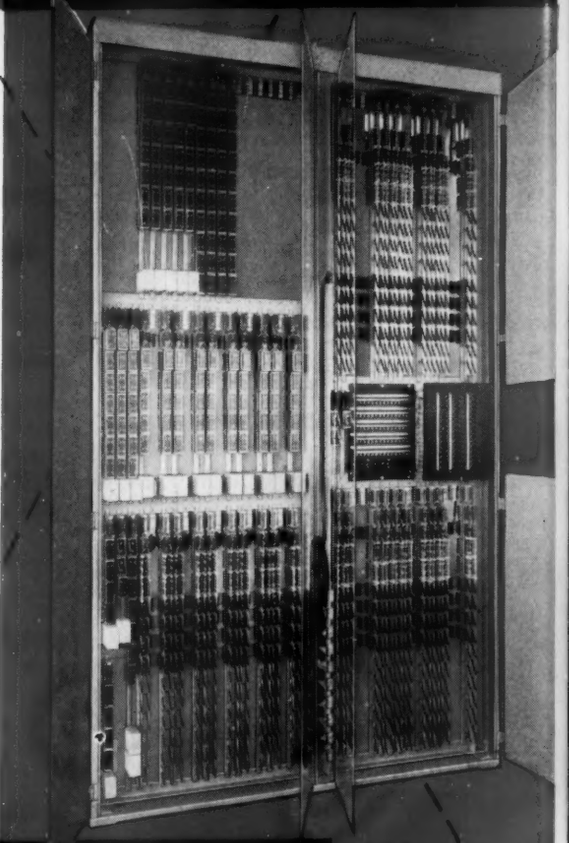

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